

1906



SAW & KNIFE FITTING
MACHINERY.

Baldwin, Tuthill
& Bolton.
GRAND RAPIDS, MICH.
U.S.A.

TERMS.

Catalogue prices are for equipment in shipping order free on cars at our factory and all sales to parties in approved credit are made subject to payment within 30 days after date of invoice. To parties unknown or unrated, our terms are cash in full with order, except that orders for shipment by express C. O. D. or by freight with Bill of Lading attached to sight draft will have attention if order is accompanied by an amount proposed by us sufficient to guarantee the express or freight charges both ways. But in the case of small orders it is always preferable to remit cash in full with order and thus avoid the necessity of opening a petty account. Time accounts not paid for on maturity will be drawn for at sight.

We make no free deliveries of goods either by mail, freight or express unless a delivered price is quoted. No deduction from our charges for prepayment, or special discounts will be allowed.

Price lists are subject to change without notice, although we shall give the greatest possible publicity to changes as made from time to time, and in case of recent advances notify the customer before accepting the order.

We reserve the right to correct stenographic or typographical errors in correspondence or price lists.

Repair orders must give templates or exact measurement of parts required or other information necessary to a correct understanding of the requirement. The name of the tool, with style or size number and shop number, if any, should be given.

MACHINES ON "TRIAL."

In general we do not solicit orders for machines on trial, for the reason that we have abundantly demonstrated during many years of manufacture that our machines will do good work and give lasting satisfaction if properly adjusted and handled. We will not assume responsibility or loss arising from the ignorance, lack of skill or prejudice of an operator. If a customer, doubtful of the adaptation of a machine to his requirement, wishes to order the machine on a ten-day trial basis, expressly agreeing that in case of non-acceptance he will return the machine promptly after the trial, in good order, prepaid, and pay us for clean-up, new belting or emery wheel, as required to put the machine in perfect order, without material loss to us, the order will have consideration, but will not be filled otherwise.

It is our wish to avoid the shipment of anything not sure to prove acceptable.

MANNER OF SHIPMENT.

Do not fail to give complete shipping instructions with each order, comprising address, town, county and state, name of postoffice if different from shipping station, and whether you want the shipment to come by freight, express or registered mail. Give preferred freight route, and if station is a prepaid point, so state. This applies especially to new lines of railway or newly established stations. In the absence of specific instructions, our usual practice is to ship machines, tools or supplies exceeding 25 lbs. weight by freight; if less than 25 lbs. weight, by express. Articles of 4 lbs. or less in weight may be sent by registered mail at cost of 1 cent per oz., and 8 cents additional for registration. Articles by mail are at buyer's risk. We furnish equipment in good working and shipping order and our delivery ends with the receipt from the transportation company. In case of damage, overcharge or delay in transit, the purchaser's recourse is upon the transportation company.

Equipment boxed for export and furnished f. o. b. cars New York, will advance 5, 10 or 15 or more per cent in price list, according to cost of such boxing and delivery, unless an advanced export price list is given specifically with domestic price list.

Goods shipped to us for repairs, exchange or otherwise, must be plainly marked with shipper's name and address and specific instructions must be sent at time of shipment.

BALDWIN, TUTHILL & BOLTON, Grand Rapids, Mich.

B. T. & B.

2 to 8 inch Band Resaw

Filing Room Outfits

OUR BEST TESTIMONIAL

Over 1500 Customers at Home and Abroad

B. T. & B. Band Resaw Tools are the Standard of Excellence.
They have the best makeup, the best finish, the greatest efficiency.

UNIFORMLY SATISFACTORY

They are made for people wanting fine Tools
They are fully tested, Adjusted and Equipped
If you are in the market let us quote you

A Band Resaw Filing Room Outfit

Band resaws in general use vary from 2 to 8 inches wide and from 16 to 24 gage, and differ from the log band saw only in size. Compared with log bands, resaws require as great or even greater care in skill and fitting, because of the thinner gages employed and the desirability of perfectly converting valuable lumber into proper thicknesses without waste.

The attempt to fit resaws without a suitable equipment of machines and tools is not economical, because of the waste in stock, poor manufacture involving extra care and labor on the part of those that work up the stuff into manufactured form, and the loss arising from breakage and destruction of saws. The greater need of suitable appliances is also evident from the fact that many of the filers called upon to take care of band resaws are men of little or no previous experience on such saws, and hence whatever is calculated to facilitate and improve their work is not only desirable but also essential.

Our outfits as regularly furnished comprise the following: (1) Automatic Sharpener, equipped with double feed finger device and post brackets for support of saw, or with pulleys for use in fitting up work. (2) A stretcher for tensioning. (3) A grasshopper Swage, with a small upset for occasional use. (4) A Swage Shaper for side-dressing, which is indispensable to the best results, although some make use of a file side-dresser. (5) A Brazing Clamp. (6) A Filing Clamp. (7) A Jointer. (8) A Steel Faced Anvil, 6x10 or larger. (9) A Leveling Block, surfaced both sides, (10) A pair of 2 to 2½ lb. Resaw Hammers. (11) A set of Resaw Straight Edges and Tension Gages. (12) For those who make their own saws or have much shearing or retoothing to do, a Retoother and Shear. (13) A Lap Cutter and Lap Grinder, if many brazes are necessary. (14) A Forge of suitable character for heating the brazing irons, Silver Solder, Acid or Brazine. (15) An Emery Wheel Dresser. (16) A book of Instruction on Band Saw Fitting and Tensioning will be found of use to beginners or those who have had little experience in saw work and are not familiar with the best practice.

A band resaw outfit for leveling and tensioning should comprise a saw stretcher, three or four wall brackets, four or five floor rolls, an anvil, an iron leveling block, a dog-head and cross-face hammer of suitable weight for the gages of saws in use (some also use a twist-face hammer), a back gage from 4 to 6 feet long, either straight or preferably concaved to suit the crown carried on back of saw, and a set of straight edges and tension gages in lengths to suit the widths of saws in use.

The above tools are without exception articles that are essential to any properly equipped filing room and should be furnished by the operator of the mill. In addition there are a number of small tools that every filer ought to have at hand, and if not furnished by his employer, he ought to personally own them. Among these may be mentioned a wire gage, speed indicator, emery wheel dresser, upset swage, saw set, saw set gage, file side-dresser, jointer, etc. Some filers furnish their own hammers, straight edges and tension gages, or even the swage and swage shaper, preferring to own their own tools, or have them at hand for use in case of possible need, though the filing room is fully equipped with everything of the sort. Every filing room ought to be provided with a locker, in which all small tools may be kept securely when not required for use by the man in charge, and the use of the filing room and its contents as a tool room by every one around the plant should be prohibited.

For 8 Inch or Narrower Log Bands or Band Resaws.

- One No. 2A Bolton Band Sharpener, \$125, or No. 2B, \$135.
- One No. 8A Bolton Stretcher and Shear, \$110, or No. 8, \$100, or 9B, \$85.
- One No. A3-1 Hanchett Swage, \$33, or No. A3-2 Hanchett Swage, \$28, or No. 13 Bolton, \$25, or White, \$30, or Crowell, \$20.
- One Swage Shaper, Bolton \$20, or Pribnow \$25, or Weston \$15, or Hanchett \$20.
- One No. 26 Bolton 42 Inch Filing Clamp, \$20.
- One No. 20 Bolton 9 Inch Brazing Clamp, with Irons, \$20.
- One No. 21A Bolton Lap Grinder, \$85, or No. 23 Lap Cutter, \$75.
- One No. 41 Special Band Brazing Forge, \$30, or No. 14 Portable Forge, \$20.
- One No. 17 Bolton Retooler and Shear, \$45.
- One No. 91 Bolton Patch Machine, \$30.
- One 8x12 Band Saw Anvil, \$20. One 8x48x3 Leveling Block, \$15.
- One Pair Band Saw Hammers, \$5.
- One 5 Foot Double Back Gage, straight and concave, \$5.
- One Combination Straight Edge and Tension Gage, 8 Inch or less.
- One File Sidedresser, Jointer, Upset and Emery Wheel Dresser.

For 6 Inch or Narrower Log Bands or Band Resaws.

- One Bolton Band Sharpener, No. 3C, \$85, or No. 3B, \$90, or No. 3F, \$105, or No. 3G, \$110.
- One Bolton Stretcher, No. 9, \$75, or No. 9A, \$75, or No. 8B, \$75, or No. 8C, \$85.
- One Swage Shaper, Bolton \$15, or Pribnow \$25, or Weston \$15.
- One Swage, Bolton \$25, or Hanchett \$28, or other type.
- One No. 14 Portable Brazing Forge, \$20.
- One No. 19 Bolton Brazing Clamps, with Irons, \$15.
- One No. 25 Bolton 36 Inch Filing Clamps, \$15.
- One No. 23 Bolton Lap Cutter, \$75.
- One No. 17 Bolton Retooler and Shear, \$45.
- One 6x10 Steel Faced Anvil, \$10.50.
- One Pair Light Band Saw Hammers, \$5.
- One Combination Straight Edge and Tension Gage.
- One 6x48x3 Leveling Block, faced both sides, \$12.
- One 4 Foot Double Back Gage, straight and concave, \$4.
- One File Sidedresser, Jointer, Upset and Emery Wheel Dresser.

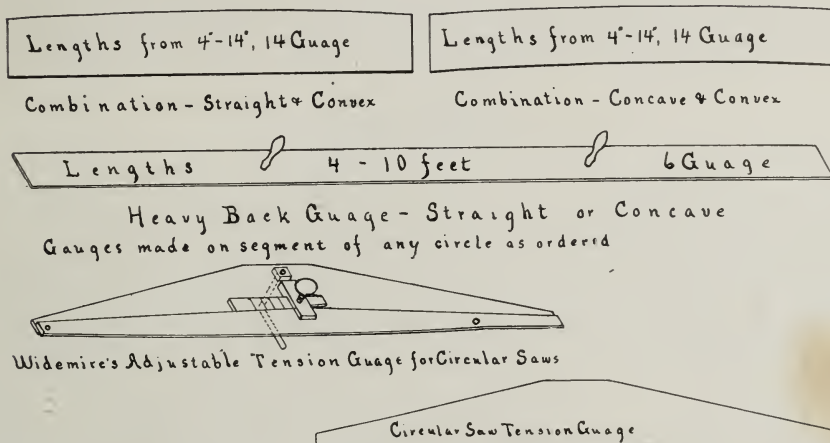
Customers will please take note that for certain widths or gages of band saws we offer for certain purposes a variety of machines or tools, varying somewhat in style and price. We will be glad to make special recommendations on receipt of specifications as to hand and gage of saws. Orders must specify whether saw is R or L hand, and should always show templet of saw teeth if possible.

Filing Room Outfits for All Purposes.

144 Page Manual on Saw and Knife Fitting, Postpaid, \$2.00.

Grand Rapids, Mich., U. S. A.

Tension Gages, Back Gages and Straight Edges for Bands, Gangs, Circulars and Resaws



Best Steel Straight Edges and Tension Gages

Straight edges from 4 to 120 inches long. 10c per inch or \$1.00 per foot.
Tension gages, 6-in. 75c; 8-in. \$1.00; 10-in. \$1.25; 12-in. \$1.50; 14-in. \$1.75.
Band Saw Back Gages, 4 to 10 ft. long, straight or concave at \$1.00 per foot.
Band Resaw Back Gages, straight or concave, at \$1.00 per foot.
When ordering back gages specify if wanted "single" edge from 14 gage steel or "double" edge from $\frac{1}{4}$ inch steel.

Combination Concave and Convex Tension Levels

(On the segment of any desired circle.)

14-in. at.....\$2 00	10-in. at.....\$1 75	6-in. at.....\$1 50
12 in. at.....1 90	8-in. at.....1 60	4 in. at.....1 40

Combination Straight Edge and Convex Tension Levels

14-in. at.....\$2 00	10-in. at.....\$1 75	6-in. at.....\$1 50
12-in. at.....1 90	8-in. at.....1 60	4-in. at.....1 40

TENSION GUAGES AND BACK GUAGES.

All saw filers need tension guages for the purpose of securing a more uniform tension than is likely to result from the application of straight edge and the eye test, and while the degree of the tension employed by different filers on different saws must necessarily be variable, there are some general truths that may serve as guides to those after information.

For log band saws ranging from 8 to 16 inches wide, the tension guages are ground variously on segments of circles ranging from 30 to 66 feet diameter, but the segments that suit the majority of filers are of circles about 35 to 45 feet diameter, the guage being usually made from 14-gauge tempered steel.

For band saws ranging 4 to 8 inches wide the degree of the tension is usually somewhat more than for log bands, say segments of circles from 26 to 35 feet diameter. As manufacturers of tension guages it is a matter of indifference on what segment we grind, and we very much prefer to be instructed on what segment to furnish guages, if customer can instruct. In the absence of specific instructions we furnish guages according to length on true segments such as are commonly employed. Some filers carry their tension practically from edge to edge of saw; others carry a strip of saw one inch wide, more or less, on the toothed edge and a strip one-half inch wide, more or less, on the back edge, these strips serving as a sort of tire for the saw. Some filers employ several guages, varying in length to suit the different widths of saws or the gradual wear. Thus for a 12-inch an 11-inch guage will be used, and when the saw wears to 11½ inches a 10½-inch guage will be used, the tire carried on narrower saws being relatively less than on wider ones. These variations in methods indicate the individual experience of men constantly watchful of results.

We furnish straight edges any length from 4 to 72 inch, made from 14-gauge polish band saw steel, combination straight edge and tension guages 4 to 20 inches long, combination convex and concave tension guages 4 to 20 inches long, all on segments as

ordered; back guages with edge straight or concaved to order, 4, 5 or 6 feet long, in 14-gauge polished band saw steel, or in lengths from 4 to 10 feet from $\frac{1}{4}$ -inch spring steel $2\frac{1}{2}$ inches wide, the longer back guages being furnished with handles, if so ordered. If you run some crown in back edge of saw, as, for example, from 1-64 to 1-32 inch in from 5 to 6 feet, the use of a concave back guage to suit your requirement will afford better satisfaction, in that it will enable you to work out the back more uniformly than will result from the use of a straight back guage.

DOUBLE BACK GUAGES. ..

One of the most desirable types of back guages that we manufacture is made of spring steel, with one edge straight, the other edge concaved to order. These are made in 4 to 10 foot lengths, and besides serving to secure the proper and uniform expansion of the back of saw, the straight edge side of guage will prove highly useful for other purposes. We undertake to meet satisfactorily any clearly defined requirements for gauges that are submitted to us.

SEGMENT GRIND FOR TENSION GAGES.

Averaging the practice of saw filers, it may be said that band saws of the following widths can be run successfully tensioned to the segments of circles of the following diameters: 4 or 5 inch saws from 26 to 32 feet, 6 inch saws from 28 to 35 feet, 8 inch saws from 30 to 38 feet, 10 inch saws from 34 to 42 feet, 12 inch saws from 40 to 44 feet, 14 inch saws from 45 to 50 feet.

THE LEVELING BLOCK.

The leveling block is preferably of iron, surfaced both sides, in size to suit the saws in use. For narrow or medium width band resaws we usually supply blocks that are either 6x48x3 or 8x48x3 inches. For log bands the blk may be 10, 12 or 14 inches wide, 48, 60 or 72 inches long, and 3, 4, 5 or 6 inches thick as preferred; however, the blocks measuring 12x48 or 60-inch face and 3 inches thick, are in greatest demand. As the constant hammering on an iron surface tends to make it convex, it is desirable that leveling blocks shall be occasionally turned end for end and also turned over.

Band Saw Leveling Blocks, surfaced both sides, slushed with rust preventive, and securely crated for safe shipment. (Thickness listed usually overruns). We have patterns for the following sizes, and will make any desired size to order.

Inches	Approx. Weight		Inches	Approx. Weight	
6x48x3.....	\$12 00	265 lbs	12x36x3.....	\$20 00	375 lbs
6x48x4.....	16 00	350 lbs	12x48x3.....	25 00	509 lbs
8 x 24 x 3	8 00	175 lbs	12 x 60 x 3	30 00	625 lbs
8x36x3.....	12 00	255 lbs	12x48x4.....	31 00	660 lbs
8x48x3.....	15 00	340 lbs	12x60x4.....	40 00	825 lbs
8x72x3.....	23 00	510 lbs	12x72x4.....	50 00	990 lbs
10x36x3.....	15 00	300 lbs	12x60x5.....	50 00	1035 lbs
10x48x3.....	20 00	400 lbs	12x72x6.....	80 00	1500 lbs
10x60x3.....	25 00	500 lbs	14x60x3.....	35 00	730 lbs
10x42x5.....	30 00	580 lbs	14x72x3.....	47 00	875 lbs

SAW ANVILS.

Steel faced anvils are the most desirable for any kind of saw hammering, for the face is one solid piece of best cast steel of uniform hard temper, perfectly welded, and warranted never to settle or change from a true surface. We also furnish anvils with face chilled and ground. These are less expensive in the log band sizes, than the genuine steel faces, and give fair satisfaction, but for hard and long usage the steel faced anvil is preferable.

We furnish anvils in many different sizes, but the sizes in general demand are made with face variously 5x8, 6x10, 8x12, 10x12, 12x14 or 12x16.

HAMMERS.

There are five different types of hammers employed in saw work, known variously as the doghead, cross-face, twist-face, combination and swaging, the first four for hammering purposes, the fifth used with a swage bar. For practical purposes the doghead and cross-face hammers are sufficient, the twist-face and combination being in little demand. The doghead is used for tensioning. The cross-face and twist-face for leveling the saw, that is, for removing lumps, bends, twists or similar distortions of the plate. The combination is made with a doghead on one end and a pene running with the handle on the other end. The doghead is also known as the round-face hammer. We will make to order hammers in any desired shape or weight, if a wood model is furnished with order. Our hammers are all finely shaped and polished, mounted with handle, and will be nickel plated and etched or stamped with the owner's name when so required, and furnished in any desired weight from 1 to 10 pounds.

Hammers should be bought with special regard to their weight and shape of face, both of which have much to do with their fitness for work. Hammers have both a use and an abuse. Heavy hammers, such as are commonly used for circular saws from 5 to 8 gauge, are too heavy for bands or band resaws. Indeed the regular band saw hammers are considered by careful filers too heavy for fine work on band saws, and many use light finishing hammers weighing not over two pounds or so, and find their use much more satisfactory. Especially is this the case where filers have a good stretcher for their work in tensioning. In such case there is very little leveling to do after the rolling, and the light hammers accomplish the work best.

We recommend as follows:

Circular Hammers—Weight mounted, from 3 to 5 pounds.

Band or Gang Hammers—Weight mounted, from 2 to 3 pounds.

Light Finishing Hammers—Weight mounted, from 2 to 2½ pounds.

Band Resaw Hammers—Weight mounted, from 2 to 2½ pounds.

Band Resaw Hammers—Weight mounted, from 2 to 2½ pounds.

A filing room may better be equipped with sets of hammers in several weights, the cost of these being inconsiderable, than for the saws to be abused by the use of unduly heavy hammers, with which the work of hammering may degenerate into a mere "pounding" or marking of the saws. This is particularly true in woodworking plants, where band resaws or thin circulars are employed, and where it sometimes happens that the filers are men who are either beginners or are at least not sufficiently far enough along in the art to be classed as amateurs.

All of the above is in direction of making it possible to level and hammer saws with the least liability of marking or denting them, and at the same time of having them perfectly leveled, tensioned and expanded on the back edge. The filer who does not look closely to all of these details is not the best filer, nor is he the filer who has the interests of his employer in mind, because the utmost care in the above details tends not only to make it possible to run saws with much less liability to crack, but also makes it possible to run them on a lighter swage, or, in other words, a thinner kerf, and to make smoother lumber and more of it.

B. T. & B. SILVER SOLDER.

The very best obtainable—uniformly satisfactory. Stock sizes, ½, ⅝, ¾, ⅞, 1¼ inch wide, per oz, \$1.25, for 6 oz, \$6.00; f. o. b. Grand Rapids, postage extra, if mailed.

BRAZINE.

An invaluable brazing compound, recommended by every saw filer and saw maker who has used it. ½ oz. sample bottle mailed for 44 cents. 4 oz. regular size bottle mailed, \$2.14. If by registered mail, remit 8 cents additional.

Spelter and Wire for Narrow Band Saws, \$1.00 per lot.

SAW AND KNIFE FITTING**THE NEW B. T. & B. MANUAL**

Revised edition. 144 pages. Copiously Illustrated and Durably Bound, is an Exhaustive treatise on the care of Saws and Knives.

A PRACTICAL BOOK FOR SAW FILERS.

Mailed Postpaid on
Receipt of Price,
\$2.00.

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Saw and Knife Fitting Machinery and Tools.

INDEX.

Adjustment of Guides.....	54, 59	Lap Grinding.....	47
Adjustment of Sharpener.....	40	Leveling Block.....	12
Anvils.....	12	Life of Saws.....	59
Back Gages.....	11	Lining Band Wheels.....	59
Band Saw Leveling and Tensioning.....	11	Lumps.....	127
Band Mills.....	63	Log Circulars	111, 117
Band Wheel Grinding.....	60, 143	List of Mills.....	134
Band Resaws.....	64, 68, 69	Lining the Saw.....	118
Band Filing Machines.....	71	Manufacture of Saws.....	79
Band Setting Machines.....	72	Number of Teeth.....	109, 129
Brazing.....	47	Norton Emery Wheel Co.....	135
Bolting Saws.....	101	Operation of Knife Grinders.....	85
Blue Spots.....	126	Outfits.....	138
Care of Machines.....	87	Patch Brazing.....	57
Care of Machine Knives.....	81	Patch Machine.....	57, 142
Cracking.....	51, 108, 126	Practical Testimony.....	32, 34
Cracked Saws.....	56	Process of Leveling.....	17
Circular Tension Gage.....	141	Quality of Knives.....	86
Crumbling.....	110	Re-toothng.....	58
Catalogue.....	134	Removal of Twists.....	21
Cut-off Circulars.....	98, 114	Rolling in Tension.....	20
Details for Band Filer's Attention.....	5	Saw Fitting.....	2, 88
Dont's for Mill Men.....	2	Saw Terms.....	13
Dont's for Saw Filers.....	3	Stretcher.....	23, 24, 30
Double Cutting Saws.....	60, 62	Shapes of Teeth.....	35, 138
Drag Saws.....	101	Style of Throat.....	37
Erection of Filing Room Machinery.....	8	Sharpening.....	39, 41, 93
Erection of stretcher & hammering bench.....	9	Speed of Saw.....	42, 110
Effect of Dull Saws.....	55	Set.....	55, 90
Emery Wheels.....	74, 78	Shearing.....	58
Edgers.....	106	Sharpening Knives.....	82
Extra Saws.....	107	Safe Guards in Factories.....	87
Fitting Teeth.....	43	Saw Filing.....	93
Forge.....	49	Swage Sharpening.....	97
Guards for Saws.....	88	Swaging.....	43, 55, 90, 111
General Observations.....	130	Strain on Saws.....	56, 66
Gage of Saws.....	128	Stave Saws.....	101
Hardening Brazes.....	50	Stave Cutting.....	103
Hammering.....	107, 119	Stave Equalizing.....	103
Hammers.....	13, 23	Stave Jointing.....	104
Hammering Bench.....	140	Shingle Saws.....	104
Heading Saws.....	102	Setting the Husk.....	118
Heating on Rim.....	132	Saw Tools.....	107
Heating at Center.....	132	Second-Hand Machinery.....	133
Hook.....	36, 195	Tension Gages.....	11
Hoop Saws.....	100	Twists.....	21, 126
Improved Methods.....	115	Tension.....	25, 122
Jointing.....	96	Tempering Knives.....	86
Knife Balances.....	84	Thin Circulars.....	113, 115
Knife Grinders.....	84	Use of Hammers.....	16
Knife Balancing.....	83	Width and Gage of Saws.....	46
Lath Saws.....	107	Woodworker The.....	136

The B. T. & B Manual on Saw and Knife Fitting

POSTPAID FOR \$2.00

D. RAMSAY, DURBAN, NATAL, SOUTH AFRICA. I am in receipt of your Catalog and Manual and can confidently say that it is worth its weight in gold twice over.

JAS. WILKINSON, OSHAWA, ONTARIO. You will again find enclosed \$2.00, the price of your Manual. On visiting a friend's house the other night I took the book along and he was so delighted with it he would not let me take it away. I need one myself so would feel obliged if you would send another at once. It is the best publication I have ever seen.

EVERETT JEWETT, WINCHENDON, MASS. I have received your Saw Fitting Manual and think it just fine.

L. B. C. KUTZ, URSINA, PA. The Manual on Saw Fitting which I purchased from you several months ago is worth its weight in gold.

CUMMER LUMBER CO., JACKSONVILLE, FLA. We find it a very valuable book and full of useful information.

EMPIRE FURNITURE CO., JAMESTOWN, N. Y. If your tools are as good as your book they must be fine.

W. A. LEVINGS, DAVIS, W. VA. I have your Manual on Saw Fitting and it gives more practical information to saw filers than all other books together. Everything on round saw is correct.

A. PETRIE, BRISBANE, AUSTRALIA. I received your Manual through bookseller and find it thoroughly practical.

JOHN HARLAND, MARYBOROUGH, AUSTRALIA. I have received your Manual on Saw Fitting. It is nicely gotten up and ought to prove of great value to practical men.

ED. LAIB, PRINCETON, IND. Your Manual is the best book of the kind I ever saw, as it contains more and better suggestions than any other.

THE WOODWORKER, INDIANAPOLIS, IND. It is very interesting and ought to be very valuable to those who have the care of saws and knives.

BRANCH SAW CO., ST. LOUIS, MO. We congratulate you on this work, which will certainly be of value to every user.

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W. T. WILSON, MEMPHIS, TENN. Your treatise on saws is plainer than anything I have ever seen in my 20 years experience in hammering and fitting band saws.

D. D. WILLIAMS, CLEVELAND, O. It should be carefully read by all mill owners and filers, especially the "economics."

E. C. ATKINS & CO., INDIANAPOLIS, IND. It is certainly very creditable, indeed

THE TRADESMAN, CHATTANOOGA, TENN. Its pages are devoted to valuable information for those engaged in saw mills and handling machinery of this nature, and the book should be in the hands of every person thus employed.

PACKAGES, MILWAUKEE, WIS. There is a great deal of useful information on the subject of saw fitting, and it is valuable both as a work of reference as to everything pertaining to saw fitting and filing and as a handy instructor and guide with regard to difficult points.

OTTAWA SAW WORKS, OTTAWA, ONT. We consider the book very valuable to mill foremen and saw filers, especially.

KIRCHNER & CO., LONDON, ENG. We have studied with great interest your book and must say that it is indeed a pity that European workmen are still so far behind in knowledge how to keep saws, particularly band saw blades, in good and first class condition.

B. T. & B. Saw Tools from Stock or Made to Order**THE FINEST MANUFACTURED**

Always specify B., T. & B. Hammers, Anvils, Straight Edges, Tension Gages, Leveling Blocks, Upsets, Swage Bars, Side Files, Jointers, Saw Sets, Set Gages, Marking Stamps, Emery Dressers, Saw Gages, Speed Indicators, etc. We furnish tension gages, convex or concave, on segment of any desired circle, back gages straight one edge, concave to order on other edge; leveling blocks, any thickness, width or length. Hammers to order, any weight, style or grind. B., T. & B. Silver Solder never reported unsatisfactory. Buyers of Brazine repeat their orders. The best saw tools are the cheapest to buy. We have them.

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F. O. B. Grand Rapids. No filing room complete without an outfit.
Remit by Draft, Money Order, Cash or Postage.

Best Hand Forged Steel Saw Hammers

Best Steel Straight Edges and Tension Gauges

Combination Concave and Convex Tension Levels

(On the segment of any desired circle.)

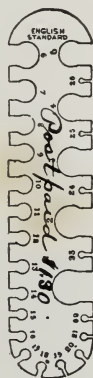
Combination Straight Edge and Convexension Levels

Iron Leveling Blocks

Surfaced both sides.			Made to order any thickness or face.		
12x48x3....	\$25 00		12x60x3....	\$30 00	12x72x3....\$35 00
6x48x3....	12 00		8x48x3, at	\$15 00.	Larger sizes pro rata

Steel Faced Saw Anvils (Warranted)

Face, 8x5	Height, 5 1/2	Weight about 60	pounds	Per pound \$	12
" 10x8	" 8	" 86	" "	" "	12
" 12x8	" 8 1/4	" 165	" "	" "	12
" 10x14	" 8	" 300	" "	" "	35
" 10x12	" 7 1/4	" 250	" "	" "	28
" 12x14	" 8	" 375	" "	" "	46
" 10x16	" 8	" 360	" "	" "	43
" 12x16	" 8	" 450	" "	" "	50



White Iron Saw Anvils Chilled and Ground

x 8	Face about 60 lbs at 12c	per pound	10x12	Face Band Saw Anvil about 160 lbs. at	\$16 00
x 8	" " 78	" 12c	10x14	" " " "	185 lbs. at 18 50
x10	" " 82	" 12c	12x16	" " " "	270 lbs. at 27 00

Upset Swages

Conqueror No. 0 for Large Circulars.....	\$3 50	Conqueror No. 1 for Large Circulars.....	\$3 00
" " 2 " Small " 	2 50	" " 3 " Small " 	2 00
" " 00 " Large " 	4 00	" " Band for Band Saws 	2 50
No. 3—Mixer Swage, largest size for saws of from 5 to 10 gauge.....	\$5 25		
" " 2 " medium " 	4 50		
" " 1 " for all thinner gauges	3 75		
" " 0 " small thin saw 	3 00		

Swage Bars and Hammers

No. 1—Bar, 8 or 6 sided, 11x1x 1/2 inch.....		\$2 50	No. 3—Bar, 8 or 6 sided, 11x1 1/2x 3/4 inch.....		\$3 50
" 2—" 8 or 6 " 11x1x 5/8 ".....		3 00	" 4—" 8 or 6 " 11x1 1/2x 1/2 ".....		4 00

Best Quality Silver Solder for Band Saw Brazing

The perfect brazing of band saws depends largely upon the silver solder. Quality is far more important than price. No good results can be had from the use of cheap, brittle solder. Our solder is the finest obtainable for brazing tempered band saw steel. Regular sizes of solder in stock being $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$ and $1\frac{1}{4}$ inch. Per oz., \$1.25, 6 oz. or more, \$1.00 per oz. We advise use of $1\frac{1}{4}$ inch solder for patch brazing in connection with the Bolton Patch machine.

Cutters and Patch Strips

Cutters for Bolton Lap Cutting Machine, each \$1.50. Cutters for Bolton Patch Machine, each \$2.50
Patch Strips for Bolton Patch Machine any guage or length to 3 inches at 25c each. Anti-Friction
Washers for Saw Stretchers, \$10.00.

Marking Stamps for Iron, Steel, Brass, Mechanic's Tools, Etc.

Size 3-16 inch letter, 25c. Per Alphabet, \$4.50. Figures per set, \$1.50.
Size 5-16 inch letter, 35c. Per Alphabet, \$7.50. Figures per set, \$2.50.
Size $\frac{1}{4}$ inch letter 30c. Per Alphabet, \$6.00. Figures per set, \$2.00
Size $\frac{3}{8}$ inch letter, 45c. Per Alphabet \$9.00. Figures per set, \$3.00.
Steel and forging extra at 50c per pound.

Marking Stamps for Logs.

$\frac{3}{4}$ inch letter, 75c. 1 inch letter, \$1.00. $1\frac{1}{4}$ inch letter, \$1.25. $1\frac{1}{2}$ inch letter, \$1.50 Forging and steel extra 50c per pound.

"Brazine" The New Brazing Compound

½ oz. sample bottle in mailing tube, postpaid, 41c; 4 oz. bottle in mailing tube postpaid, \$2.13. Commercially pure muriatic acid, \$1.00 per pound

Repairs For Swages and Shapers

We supply repairs for any make of swage or shaper.

Perfect Band Saw Tensioning Requires a Bolton Band Resaw Stretcher

The Best for Saw Shops or Filing Room. Bolton Stretchers have the Weight, Power,
Cut Gears, Easy Leverage, Right Grind. They Tension Right.

WHAT ONE OF OUR STRETCHERS WILL DO.

- It renders the use of hammers almost unnecessary.
- It prevents crystallization, cracking, brazing.
- It makes no hammer marks.
- It prolongs the life of saws.
- It economizes saw bills.
- It affects all parts of the saws uniformly according to pressure exerted.
- It saves the filer both time and labor. Stretcher work to hammer work is in proportion of 1 to 3 or 4.
- It restores quickly and uniformly the tension lost by the strain of too rapid feed.
- It affords straight running saws that cut to a line.
- It soon pays for itself by increased quantity and quality of output.
- It makes possible the use of the thinnest blades, thus saving saw kerf and money.
- It does not require a skilled filer to operate it.
- It enables the unskilled filer to greatly prolong the life of his saws.
- It is a machine that is now considered by millmen, factory operators and filers to be indispensable to the perfect tensioning of bands, gangs and resaws.
- Our manual on Saw Fitting gives full information regarding proper use of stretcher.
- Our Stretchers stretch right and are everywhere considered the best obtainable for the service.
- Our extensive sale of these machines throughout the United States, Canada and foreign countries, our numerous testimonials, and our knowledge of the requirements and high-grade construction, are all guaranties that we can please you.
- If you question the merit of the machine, try one.
- The cost is a mere trifle compared with the increased life and efficiency of your saws.
- You can't afford to defer the purchase of a machine if not equipped.
- We can usually ship on sight of order.

CARE OF SAW STRETCHER ROLLS.

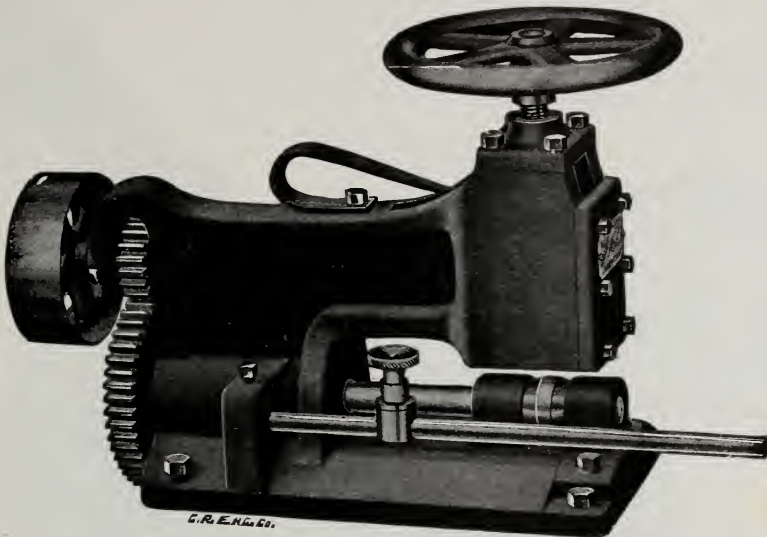
We advise every operator of a saw stretcher to send the rolls to us for regrinding, as may be needful. There are many stretchers that have been in use for years, and that ought to have the rolls, which have become worn and out of true, properly reground. Our machines differ in the matter of weight, strength and the consequent power that can be exerted by the rolls in the process of tensioning, and the face of the rolls are ground on a segment suited to the type of the machine and the degree of the pressure obtainable. No stretcher with rolls improperly ground can work satisfactorily, and it may increase instead of lessen the filer's work by reason of dishing the saw, or even by rolling in a twist. Hence, if you have a stretcher in your filing room that is not working satisfactorily the least expensive and most certain remedy for it is to have the rolls re-ground, mounted on their own shafts.

WE REGRIND STRETCHER ROLLS.

We have reground the rolls from many hundreds of stretchers, comprising every known type, and not in a single instance has our work failed to give satisfaction. Our charge is nominal and will be quoted on request, and the best advice we can give any user of a stretcher is to send the rolls to us if they need grinding, and many mill men and factory operators make it a practice to send in their rolls as often as once a year, during some shut-down, so that the machine shall at all times be kept in the most effective condition for use. There is no doubt that the advantage resulting to them from this practice insures a big return to them for the trifling expense, and in this way a machine that is in its original make-up all that can be desired in the matter of weight, power and strength and manner of construction can be kept always in effect brand new.

What the practical man wants is to have his band saws perfectly leveled and tensioned, and to minimize hammer marks and cracking, patching and brazing, to increase his output and reduce his saw bills, and a good stretcher helps a lot.

BOLTON BAND RESAW STRETCHER FOR SAWS 17 TO 26 GAGE.



No. 9A—For Saws 2 to 6 inches wide. \$75.		No. 9B—For Saws 2 to 8 inches wide \$85.		
Approx. Weight	Driving Pulley	Speed	Floor Space	Code Word
(No. 9A) 175 lbs.	10-inch—2-inch Belt	100	10x20x16 high	Tension
(No. 9B) 250 lbs.	10-inch—2-inch Belt	85	10x32x21 high	Tensioning

10 per cent advance in price for boxing and delivery at New York for export.

The No. 9A or 9B Bolton Stretcher is built with upper roll undriven, and with hand-wheel and screw device for pressure, cut gears, solid steel rolls ground on approved segments, and warranted efficient in every respect. In operation it is quick, handy, powerful and convenient.

These stretchers give the greatest possible satisfaction and have been sold extensively for saws ranging from 18 to 22 gage. Many hundreds of them are in daily use throughout the United States, Canada and throughout Europe. The 9B are also sold for sawmill use but for saws 17 gage or heavier we recommend one of our larger and more powerful machines, which have greater reserve power for heavy gage saws.

WM. B. MERSHON & CO., SAGINAW, MICH. Replying to your letter asking us our opinion of the tools you manufacture for fitting Band Resaws, would say that we have been using these ourselves and furnishing a good many to our customers, and they have given good satisfaction.

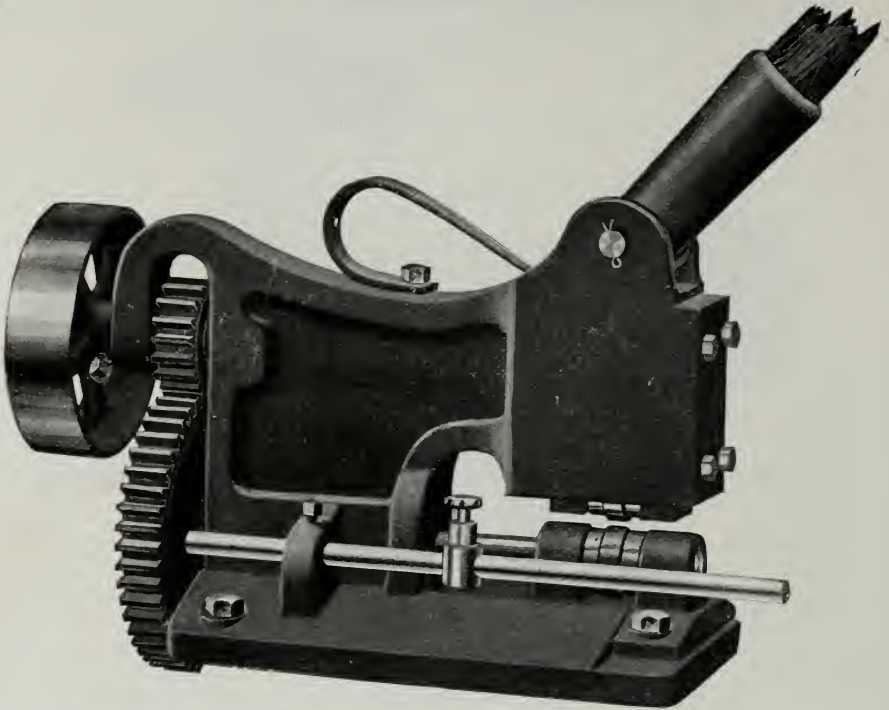
BUFFALO PLANING MILL CO., BUFFALO, N. Y. The Stretcher, Shears and Retooler that we bought of you about a year and a half ago have given us the utmost satisfaction, and we do not see how any well regulated mill using a Band Resaw can do without them. We certainly take pleasure in testifying to their merits.

WING & ENGEL CO., OLDTOWN, ME. We have had one of your No. 9 Bolton Stretchers in use about four years and could not keep house without it.

ARTHUR SIMPSON, EAST SAGINAW, MICH. In reply to your inquiry as to how we like Band Resaw Fitting Tools, would say we do not know how we could possibly get along without them; especially the Saw Stretcher. We have run one set of saws on our machine ten months without having to braze once in that time, which is largely attributable to the fine work done by your Resaw Stretcher. Will say that our man was entirely new to band resaw work. I think the Stretcher is a great saver of saws and time in keeping them in repair, and consider that you have the best set of tools of that kind on the market. The Swage and Side Dresser are simply immense. You can refer to me at any time.

DILLINGHAM MFG. CO., SHEBOYGAN, WIS. We have been using one of your Stretchers now for several years and find it a very useful tool, performing all you claim for it. It puts the required tension in saw blades, leaving them smooth and free from dents and hammer marks, that soon use up the life of band saws that are fitted by the use of hammers.

Baldwin, Tuthill & Bolton,
Bolton Band Resaw Stretcher.



Bolton Band Resaw Stretcher for Saws 17 to 26 Gage.

No. 9—For Saws 2 to 6 inches wide \$75.

No. 9C—For Saws 2 to 8 inches \$85.

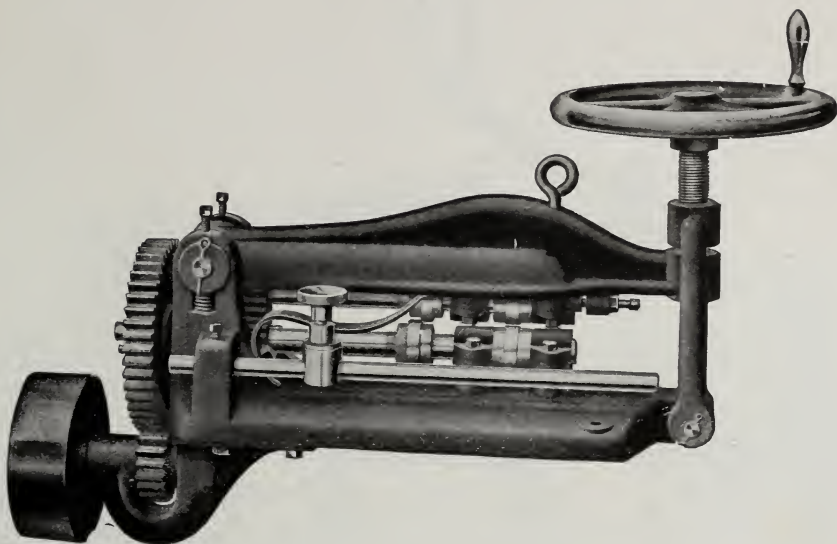
Approx. Weight	Driving Pulley	Code Word	Speed	Floor Space	Code Word
(No. 9) 200 lbs.	10-inch—2-inch Belt	Indispensable	85-100	10x32x21 high	Salable

No. 9 and 9C Bolton Stretchers, in 6 and 8 inch capacities, at \$75 and \$85, respectively, have lever and eccentric device for pressure and require the application of hand power in tensioning. The power required is moderate, and after a little use the operator comes to "feel" his saw and can vary the pressure at will instantly, and thus accomplish desired results in a minimum time. They are identical in style and manner of construction with the No. 9A and 9B machines, differing only in the detail of manner of pressure. For short gang saws the machines are the quickest working of any we have. This style of stretcher was introduced several years earlier than the 9A style, but of late, the latter has been in the greater demand.

CONSOLIDATED BOX & MFG CO., MUSCATINE, IA. Replying to yours you may enter our order for Resaw Stretcher and Retoother and Shear. The teeth are spaced $1\frac{1}{8}$ from point to point, and half-inch deep. This will enable you to fit them nicely. We have read your letter with pleasure, and order with more than usual confidence, because of the clearness with which your letter states the guaranteed working of the machine.

McFERSON & FOSTER, EVANSVILLE, IND. We have had in use in our mill for several years one of your Band Resaw Stretchers, and we have no hesitancy in pronouncing in decidedly, the best machine that we have had in our file room. Previous to putting in this Stretcher we were troubled very much with our band saw breaking, but since this machine has been in use we have overcome this difficulty, and experience no trouble in this respect to speak of. It is also a great labor saver, as we can fit up our saws in very much less time than we could before we put in this machine. We would not be without it for anything, and think that it has more than paid for itself.

HERRIMAN & CURD CO., HANNIBAL, MO. We are very much pleased with the two Band Resaw Stretcher that we purchased of you some time since, one each for our Hannibal and Eau Claire factory. These Stretchers have given us perfect satisfaction. We have had no cracked saws since using these machines. They also give us more perfect uniform tension that we have been able to secure through the old method of hammering which we had in practice before the receipt of your stretchers. They also enable our filers to do satisfactory work. We would not be without them.



No. 8B—Bolton Stretcher for 6 inch saws, without Shear \$75 00

No. 8C—Bolton Stretcher for 6 inch saws, with Shear.. \$85 00

Code Word

(8B) Amiable

(8C) Amenable

Approx. Weight
Crated 225 lbs.

Driving Pulley
10 inch.
2 inch Belt

Speed
95
20 feet

Floor Space
12x22 inches
17 inch high

10 per cent. advance in price for boxing and delivery at New York for export.

RECOMMENDED FOR SAWS 17 TO 24 GAGE.

The No. 8 B and No. 8C Bolton Stretchers are built with geared rolls and with or without cutters for shearing as listed, hand wheel and screw device for pressure, cut gears throughout, solid steel rolls ground on approved segments, and warranted efficient in every respect. With this machine provided with shear, a band saw may be sheared on either edge at same speed as saw feeds through in tensioning. It is quick, handy, powerful and convenient.

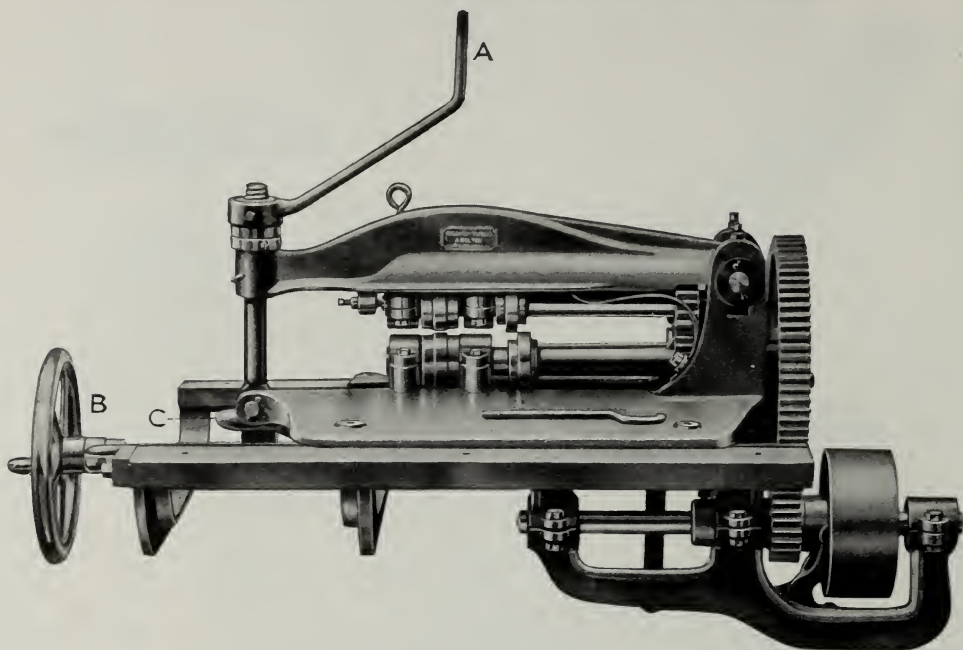
THE HALL & MUNSON CO., BAY MILLS, MICH. We have yours quoting your different styles of Saw Stretchers, and we beg to advise you that we have decided to purchase another one of the Band Resaw Stretchers at your list of \$75. This makes two of these machines we have purchased from you within a month. You will please enter our order immediately, so advising us.

LINTON MFG. CO., EAST SAGINAW, MICH. After getting prices, cuts and descriptions from other manufacturers and comparing them with yours, we decided to purchase from you one of your Saw Stretchers, Retoothers, Band Swage and Swage Shaper. We have used them all for some time and given them thorough and severe tests, and have no hesitancy in saying that they are the best machines of the kind made.

ALAMAGORDO LUMBER CO., ALAMAGORDO, N. M. We are using your No. 8 Stretcher at the present time and it is giving entire satisfaction.

JOSHUA OLDHAM & SONS, BROOKLYN, N. Y. You have the very best Saw Fitting Machinery in the world.

F. M. WEST, SPRINGFIELD, MASS. I am using your Band Resaw Stretcher and Sharpener and consider them first-class tools and indispensable in the use of Band Resaws. (Bought another.)

BOLTON 10 INCH MOVABLE STRETCHER AND SHEAR.

Approx. Weight Net 435 lbs. Skidded 500 lbs Boxed 600 lbs	No. 8D Stretcher for 10-inch Saws without Shear.	\$135 00		
	No. 8E Stretcher for 10-inch Saws, with Shear	145 00		
	Driving Pulley	Speed	Floor Space	Code Word
	8x3 inches	115	20x30 inches	(8D) Coesteemed
	2½ inch Belt	25 feet	24 inches high	(8E) Coesteeming

May be furnished with Anti-Friction Washer for \$10 extra.
10 per cent. advance in price for boxing and delivery at New York for export.

BOLTON 10 INCH MOVABLE STRETCHER AND SHEAR.

The Stretchers above listed have capacity for saws 2 to 10 inches wide and have been sold principally for log bands, gangs or resaws 16 gage or thinner. For saws 15 gage or heavier we recommend our No. 5 or 6 Bolton Stretchers.

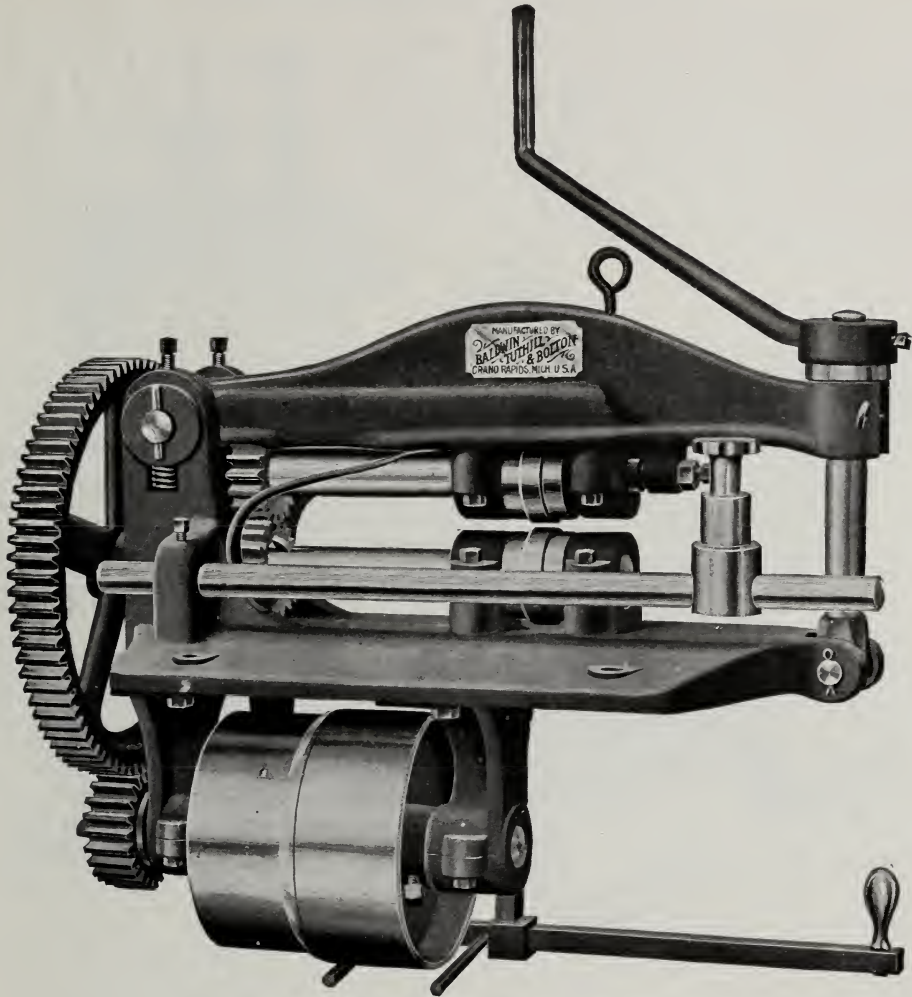
The above machines are similar in style but the No. 8E is provided with cutters for shearing, thus enabling the operator to trim either the back or toothed edge of saw at same speed as travel of saw through rolls when tensioning.

These stretchers have geared rolls of solid steel, cut gears throughout, lateral movement to adapt the rolls to any part of the saw without shifting the saw itself, this lateral movement obtained by mounting the entire machine on a heavy bed plate having two V tracks, over which the machine moves laterally by screw feed and hand wheel at right side of machine. For 8 to 10 inch saws 16 gage or thinner one of these stretchers is in every respect the best machine to use and the best machine to buy, because it is the heaviest, most powerful and best built machine in the market, will tension or act on the hardest spots with absolute certainty of affording desired results, with no possible lost motion, no change in the roll shaft bearings with respect to the rolls, while the rolls cannot fail to track perfectly, travel together, with the shafts always parallel and so heavy they will not spring.

If you do not care for the feature of lateral movement, one of our No. 8 or 8A Bolton Stationary Stretchers will serve equally well. See cut, and price lists.

BOLTON STRETCHERS FOR 10 TO 16 INCH BAND SAWS.

We also build Bolton Stretchers with rolls stationary or movable, and with or without cutters for shearing, weighing from 800 to 1,200 lbs. in size for 12, 14 or 16 inch wide band saws. If interested write for Cuts, description and price lists.



Bolton 10-Inch Stationary Stretcher and Shear.

No. 8A Bolton Stretcher for 10-inch Saws, with Shear... \$110.00

No. 8 Bolton Stretcher for 10-inch Saws, without Shears.. 100.00

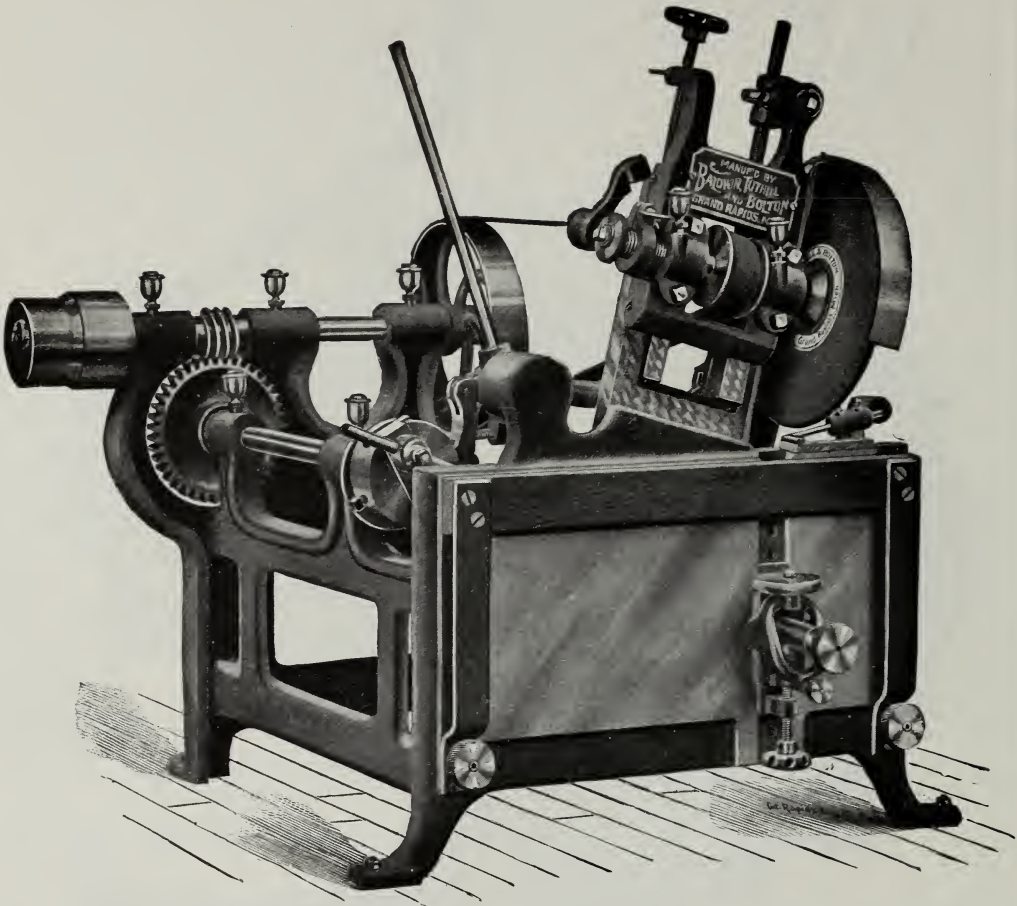
Approx. Weight	Driving Pulley	Speed	Floor Space	Code Word
350 skidded. 450 lbs boxed	8x3 inches	115	20x30 inches	(8) Esteemed
	2½ inch Belt	25 feet	24 inches high	(8A) Esteeming

May be furnished with Anti-Friction Washer for \$10 extra.
10 per cent. advance in price for boxing and delivery at New York for export.

BOLTON 10 INCH STATIONARY STRETCHER AND SHEAR.

The Stretchers above listed have capacity for saws 2 to 10 inches wide and are recommended for log bands, gangs or band resaws 15 gage or thinner. However, for saws 15 gage or heavier we usually sell one of our No. 5 or No. 6 heavy Bolton Band Saw Stretchers. They are similar in style, but the No. 8A is provided with cutters for shearing, thus enabling the operator to trim either the back or toothed edge of saw at same speed as travel of saw through rolls when tensioning. It has geared rolls of solid steel, cut gears throughout, lever and screw for pressure, may be driven from below or on overhead, and is a very efficient, desirable machine.

HARRIS & COLE BROS., FLATWOODS, TENN., J. E. COFER, FILER. Your No. 8 Stretcher and Shear is an excellent tool in the hands of a competent workman, for he needs no hammer to level with. I haven't put a hammer on my saws since I have had the Stretcher, and the mill is cutting from 2,000 to 3,000 feet more day than ever cut before. (This company has purchased three Stretchers.)



(Sold with unqualified warranty)

No. 3 Bolton 2-6 Inch Resaw Sharpener, Built R. H. or L. H., as ordered. Cut Shows L. H., the Saw Surrounding Sharpener.

SOLD IN THE FOLLOWING STYLES:

		Price	Code Word	Estimated Shipping Wt lbs.
No. 3A.	Bolton 2 to 6 in. band resaw sharpener no back pawl or supports for saws	\$ 75 00	Unlimit	200
No. 3B.	With adjustable pulleys for saw	90 00	Unlimited	300
No. 3C.	With double feed, 6 post brackets and back pawl	85 00	Unlimitable	215
No. 3D.	For 24-inch circular rip saws and an extra front for 6-inch band resaws, no back pawl or supports for saws	95 00	Unlimiting	250
No. 3E.	With double feed, 10 post brackets and back pawl	95 00	Unique	240
No. 3F.	Combination band and circular, double feed, 6 post brackets and back pawl	105 00	United	260
No. 3G.	Combination band and circular, adjustable pulleys	110 00	Union	300

Belting, Emery wheel and Blower furnished with each style.

Driving Pulley	Speed	Floor Space
3½ in.	750	26x30 in.
1¼ in Belt	30 Teeth	30 in. high

Order by style number, and give hand of saw and style of teeth wanted.

We will furnish an Iron Leg. Wood Frame Table, 21x27x32 inches high, on which to mount the Sharpener, for \$10.00 extra, or customer can erect a suitable table at mill. Iron legs only \$5.00 extra.

10 per cent. advance in price for boxing and delivery f. o. b. cars New York for Ocean shipment

Description of Bolton No. 3 Band Resaw Sharpener

For band resaws from 2 to 6 inches wide and 16 to 20 gage, our Bolton No. 3 Sharpener is indispensable to fine results. Band resaws cannot be run profitably with hand fitting. Using the sharpener, much time is saved every tooth is fitted alike, the hook and width of saw are maintained, the saw cuts cleaner and smoother, the kerf is reduced, the feed is increased, and with proper tension the frequent changing of saws is unnecessary.

Our Band Resaw Sharpener combines every feature of convenience and advantage. We **POSITIVELY WARRANT** it to be the best designed and constructed, and the finest working band resaw sharpener of its size. Furnished for 7-inch saws on special order, but for saws wider than 6 inches we recommend the Bolton No. 2 Sharpener.

It is a heavy, strong and rigid machine, free from vibration.

Regular capacity, a 6-inch saw and an 8-inch emery wheel.

All boxes babbitted and fitted with oil cups. Ample provision for keeping all wearing surfaces well oiled. The main slide is thoroughly hand-scraped to bearing and all wear taken up by the gib. The feed is adjustable. Reduced pulley relieves the belt strain when machine is idle.

Machine is equipped with powerful cut gears, emery wheel lifter, guard, dust pipe, blower and belting, wheel. Positive stop for saw clamp.

Inclination of emery wheel obtained by slacking one screw and tilting the head. Can secure any hook up to about $4\frac{1}{2}$ inches on a 6-inch saw, more hook than is ever required.

A reversible form for shaping the back of teeth, one side adapted to make a straight back, and the other side adapted to make a rounded back to teeth. The inclination of this form may be varied at will by an adjustment of one set screw, to vary the pitch of the back of teeth. This form is very simple and convenient and enables the operator to readily produce any of the different styles of band resaw teeth.

The machine is built with slide head, carrying emery wheel, operated by two forms. As the saw is pushed forward by feed finger, the sliding form raises the head to conform with back of tooth, and as feed finger recedes the rotating form engages and drops the head gently into the throat, allowing the emery wheel to just reach bottom of the throat, as the saw is again pushed forward. There is no possibility of burning the points or grinding a depression at root of tooth, as all grinders operated by one form will do. Any kind of round gullet may be made.

The emery wheel has lateral adjustment which obviates the necessity of changing the stroke of feed finger while grinding. A slight turn of the knurled nut shown at upper end of arbor will instantly change the grind from face to back of tooth. The saw rests on a hardened steel shoe, is held to machine and given proper tension by hardwood clamp supported by flat steel springs, and is instantly removable to admit or withdraw the saw.

An independently operated clamping wheel, with round face, which revolves against the side of saw, is mounted upon the rest for back of saw. The clamping wheel holds saw down when pawl pushes in upper part of face of tooth, as is sometimes the case with teeth of extreme hook, but in no interferes with the insertion or removal of saw.

The saw may rest horizontally upon adjustable pulleys or upon adjustable post brackets. We recommend the post brackets and double feed device. The machine will be adjusted to requirement, if order is accompanied with full specifications regarding the saws and with templet of saw teeth. Mount machine on bench of suitable height.

THE JUDGMENT OF CUSTOMERS.

GEO. A. DUDLEY, NORFOLK, VA.: Your Bolton No. 3 Band Resaw Sharpener has more good points to the square inch than all other makes combined.

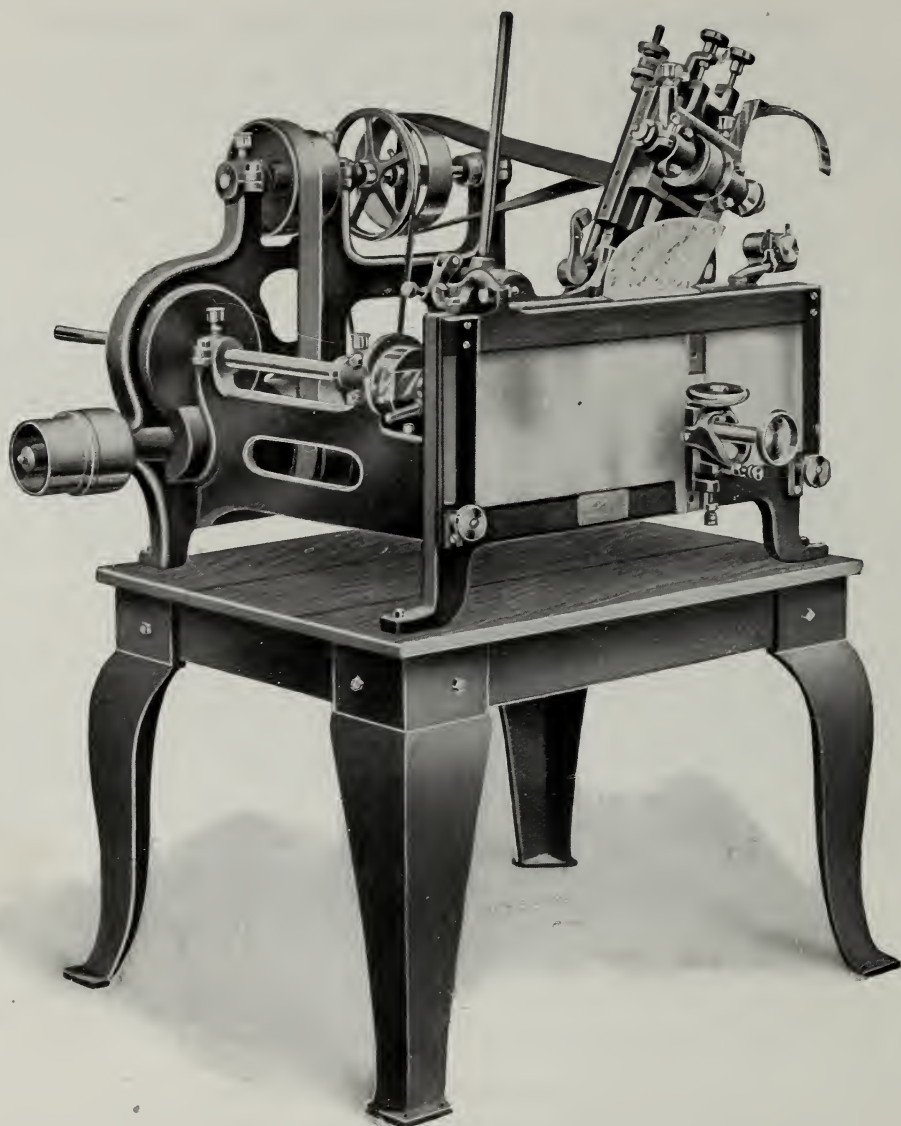
A. LASANCE, CINCINNATI, OHIO: The Bolton No. 3 Band Resaw Sharpener is doing nice work.

J. E. VOIGT, LUTHER, LA.: The Bolton No. 3 Band Resaw Sharpener arrived last week and works fine, doing so well, in fact, that the man running the resaw has asked for more wages, as he has to handle a great deal more lumber.

BELDING HALL MFG CO., BELDING, MICH.: I am using one of your No. 3 Sharpeners, which works the best and most complete of any machine of the kind I ever saw.

GRAND RAPIDS VENEER WORKS, GRAND RAPIDS, MICH.: The Automatic Band Resaw Sharpener works perfectly satisfactory, and we are delighted with it. Can recommend it to any one wanting a first-class machine in this line.

F. H. CLEMENTS CO., ROCHESTER, N. Y.: We believe your Band Resaw Sharpener is the best tool of the kind there is made.



(Sold with unqualified warranty.)

**No. 2 Bolton 2-8 Inch Band Saw Sharpener, built R. H. or L. H., as ordered.
Cut Shows L. H.**

SOLD IN THE FOLLOWING STYLES:

	Price	Code Word	Estimated Shipping Wt. lbs.
No. 2 Bolton 2 to 8 in. Sharpener, no back pawl or post brackets for saw..	\$115 00	Substance	500
No. 2A, double feed, 6 post brackets and back pawl.....	125 00	Invincible	550
No. 2B, with 36 in. adjustable pulleys to support saw.....	135 00	Substantial	575
No. 2C, R. and L., double feed, 10 post brackets and back pawl.....	135 00	Invulnerable	750
Belting, Emery Wheel and Blower furnished with each style.			
Driving Pulley	Speed	Floor Space	
2½x5 in	700	30x36 in.	
2-in Belt	32 Teeth	32 in. high	

Order by style number, and give hand of sharpener and style of teeth wanted.

We will furnish an Iron Leg, Wood Frame Table, 21x27x32 inches high, on which to mount the sharpener, for \$10.00 extra, or customer can erect a suitable table at mill. Iron Legs only, \$5.00 extra.

10 per cent. Advance in Price for Boxing and Delivery f. o. b. cars New York for Ocean Shipment

Description of Bolton No. 2, 3-8 in. Band Saw Sharpener

Our BOLTON NO. 2 BAND SAW SHARPENER has been designed especially to meet the requirements of saws used on the light log band saw or the heavy band resaw mills. WE POSITIVELY WARRANT it to be the best designed and constructed, and the finest working band sharpener of its size.

It is a heavy, strong and rigid machine, free from vibration. Maximum capacity, a 10-inch emery wheel and an 8-inch saw. We can arrange the machine for 9 or 10 inch saws on special order, but for widths over 8 inch we recommend our Bolton No. 127 sharpener. All boxes long and heavy and fitted with brass oil cups. Slides long and heavy with wear taken up by gib. All wearing surfaces have oil chambers and are thoroughly hand-scraped to bearing. Feed-finger adjustable; positive stop. Emery wheel arbor has lateral adjustment which obviates the necessity of changing the stroke of feed finger while grinding. Two-step pulleys afford two speeds to emery wheel to accommodate its wear. Reduced pulleys relieve the belt strain when machine is idle. Emery wheel, guard, dust pipe, blower and belting with each machine.

Inclination of emery wheel anything from 0 to 45 degrees, by slacking one set screw and tilting the head to give the hook desired. The cutting edge of emery wheel is always in the same relative position with respect to the feed finger, whatever the hook. Provided with Universal and Rotating Forms for producing readily any desired shape of tooth. An independently operated clamping wheel with round face, which revolves against the side of jaw, is mounted upon the rest for back of saw and holds saw down when pawl pushes in upper part of face of tooth, as is sometimes the case with teeth of extreme hook.

The machine is built with head composed of two slides, one mounted upon the other. The main slide carries the emery wheel up and down. The auxiliary slide takes up the wear of the wheel so that whatever the size of the wheel in use the wear of the main slide is always constant. The saw may rest horizontally on adjustable pulleys or upon adjustable post brackets. We recommend the post bracket and double feed device. The machine to be mounted on a bench of suitable height.

THE JUDGMENT OF CUSTOMERS.

ELK RAPIDS IRON CO., ELK RAPIDS, MICH., J. S. CURRIE, FILER: The Filing Room Outfit placed here by you is perfectly satisfactory. We run 10-inch 14-gauge saws 47 feet long on a McDonough Mammoth Band Resaw, and although the saws may be considered too heavy and unwieldy for your No. 2 Bolton Sharpener, yet the machine handles these saws efficiently, and in positive motion and accuracy of feed cannot be surpassed. Anyone in doubt can call here and see the machine at work and convince himself as to its merits.

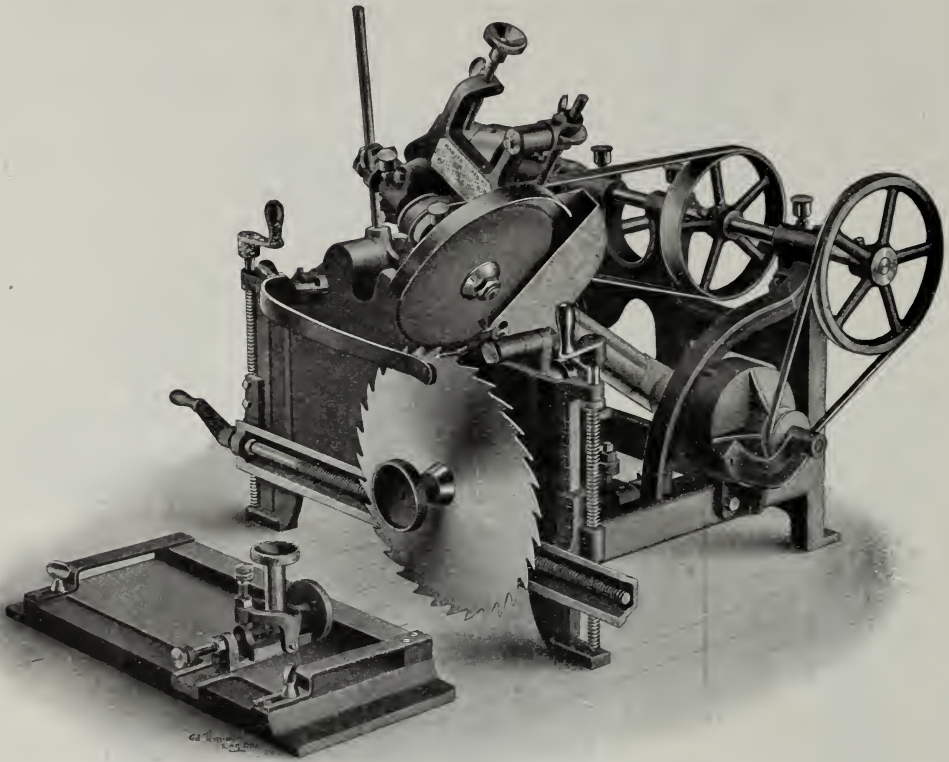
JOHN J. SITZLER, 551 TENTH ST., BROOKLYN, N. Y.: As an experienced band saw expert, I will say that during the past seven years I have used the Baldwin, Tuthill & Bolton Filing Room Machinery and find everything first-class. The No. 2 Bolton Sharpener is everything one can wish for, and can be adjusted to any style of tooth I wish to use. I attribute my success largely to always having been equipped with your machinery. I always make my own saws from the blank blades and find your stretcher and shear, as well as your retooter, filing and brazing clamp, very valuable and the best in the market.

N. E. HUFF, FILER, M'COY LUMBER CO., HELENA, ARK.: The Bolton No. 2 Sharpener which you shipped the McCoy people arrived all O. K., and has been running about three weeks. It grinds very accurately and gives entire satisfaction.

SPRINGER LUMBER CO., SOUTH CREEK, N. C.: We will have to throw out the grinder that came with our mill, and you will please send us one No. 2 Bolton Band Sharpener as soon as you can, for we are needing it badly.

ERIE RAILWAY CO., UNION DRY DOCK, BUFFALO, N. Y., BY EDW. C. GASKIN, SUPT.: Replying to your inquiry regarding the Saw Filing Machinery you furnished us, I take pleasure in advising you that the complete filing room outfit has given us every satisfaction, especially the Bolton No. 2 Band Sharpener, which does its work accurately and without any trouble. The general construction of this machine is, to my mind, perfect.

MALEY, MAY & MALEY, EVANSVILLE, IND.: The No. 2 Bolton Band Sharpener and No. 8 Stretcher which we bought of you some time ago are all right in every respect. The construction of both we think is perfect, and the machines are the simplest and easiest adjusted and handled that we ever saw. We are very much pleased with both machines. Our filer has used several different kinds of sharpeners and stretchers, and he likes these machines better than any he has every used.



No. 3 D Bolton Combination Band and Circular Rip or Resaw Sharpener.

Sold in the following Styles:

	Price	Code Word	Estimated Shipping Wt. lbs.
No. 3-D. Bolton combination 2-6 inch Band and 4-24 inch Circular Rip Saw sharpener, no supports for band saw, no back pawl.....	\$ 95 00	Unlimiting	250
No. 3-F. As above with double feed and 6 post brackets and back pawl for bands	105 00	United	275
No. 3G. Like 3-D with adjustable pulleys for bands.....	110 00	Union	350

Belting, Emery Wheel and Blower furnished with each style.

The above machine, for circulars only, is our No. 77, at \$75.00. The combination machine is very desirable for factory use.

Drive Pulley	Speed	Floor Space
.3½ in	750	26x30 in.
1¼ in. Belt	30 Teeth	30 in. high

DESCRIPTION.

Our No. 3 D. Bolton Combination Band and Circular Rip or Resaw Sharpener is the most desirable Sharpener built for all saws within its capacity. Its construction is similar to that of our No. 3 Bolton Band Resaw Sharpener, except that the main front is arranged for circular saws, and when required for bands, the crosshead for support of circular saws may be run down and the band saw bolted on, thus making the machine equally efficient for band or circular rip or resaws. It is especially desirable for all mills or factories having both band and circular saws, but with not enough work to justify the purchase of two machines. Built in L. H. style only.

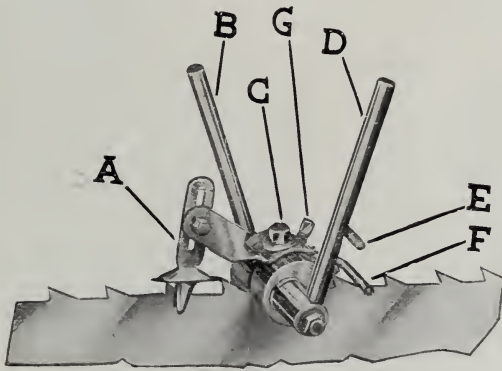
With orders give style number, tracing of teeth and hand of saws.

We will furnish an Iron Leg, Wood Frame Table, 21x27x32 inches high, on which to mount the Sharpener, for \$10.00 extra, or customer can erect a suitable table at mill. Iron Legs, only \$5.00 extra.

Bolton Band, Band Resaw or Light Gang Saw Swage

Our Bolton Eccentric Resaw Swage has met with a very large sale and seems to combine all the points of a perfect tool. It has been sold for use on saws as thin as 23 guage, and as heavy as 15 guage. The swage as made for band resaws can be used on any teeth 3-16 inch or longer. It swages by an eccentric stroke of die on face of tooth, making a slight impression and spreading the tooth widest at the point. The swage can be readily adapted to all ordinary shapes of teeth and gives sufficient swage without the use of an upset. The guides shown on machine are adjustable to bring swage alike on all teeth. The tool is made of steel and will last a long time. It is full nickel plated. Any part can be duplicated at a small cost.

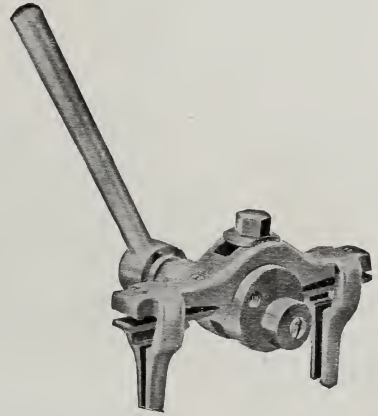
This machine has had a large sale for Band Resaws of all widths, spacings and guages.



No. 13 Bolton Band Resaw Swage for Saws 18 to 23 Guage, \$25.00; Code Word, Ingenious.

No. 14. For Saws 15 to 18 Guage, \$25.00; Code Word, Ingeniously.

Boxed 4x6x12 in. Weight, 3½ lbs.



Bolton Shaper No. 28, sizes for log bands gangs and resaws. Price \$20.00. Code word, Necessity. Weight, boxed, 5 lbs.

IMPORTANT.—Every order for a swage or shaper should be accompanied with a templet or careful pencil tracing of the teeth, with guage of saws and amount of swaging desired. The tool can then be properly adjusted.

No. 13 Bolton Band Resaw or Light Gang Saw Swage.

JAMES BAILEY, FILER FOR JAMES H. DYKEMAN, BROOKLYN, N. Y.—The Bolton No. 13 Face Swage for Band Resaws is the best tool of the kind I have ever handled, and I am twenty years in the business. I run a very short tooth, 5-16 inch, on my very thin saws, and have always found that other swages, while making a good swage on 19 guage or heavier saws, would not give satisfaction on 22 guage or lighter saws. But judge of my surprise when I swaged the first saw 22 guage, 31 feet long, in twelve minutes, and my teeth were so uniformly spread that I used the Bolton Swage Shaper more through force of habit than because there was any need of it. I use the swage on saws from 18 to 22 guage with equally good results. We are using up-to-date filing room equipment, B., T. & B. machinery throughout. I have been here six months, and although we are working thirteen and one-half hours per day and sawing spruce and North Carolina pine, I have not had a saw crack once. Good filing room machinery does the work if properly handled.

...Hundreds of similar testimonials received.

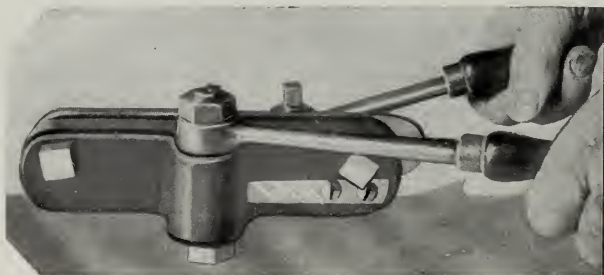
Swage Shapers or Pressure Sidedressers for Band Gangs. Circulars and Resaws

The side dressing of a band, gang or resaw has much to do with the saw cutting straight and smooth. Each tooth must stand straight and have a perfect clearance at the point, with sharp, keen cutting corners. The point, or cutting edge of tooth, should be the widest, with taper down and back from point for perfect clearance. This prevents friction in the cut, which tends to heat the saw and affect its tension. Having the saw properly sidedressed, very thin saws can be run successfully, cutting a minimum kerf on a maximum feed and output.

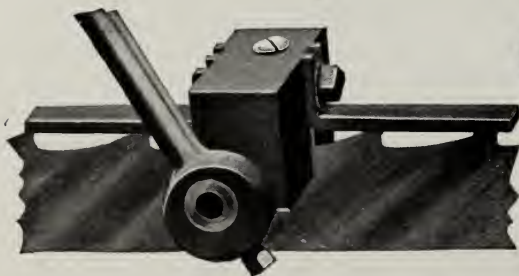
Expert saw filers are coming more and more to use the swage shaper wholly for sidedressing purposes, and while a side file may be used by some with results satisfactory on saws of 12 to 16 guage, the side file will not do for light guaged saws. For band resaws a shaper is considered indispensable.

The Swage Shaper or Pressure Side Dresser dispenses with the use of this side file. The tool is used similarly to an eccentric hand swage, resting over point of tooth and operated by a single lever, to force the sidedressing dies together. The shaper completes the work of the swage, and by its use the swaged tooth may be pressed into perfect and uniform shape. A pair of dies press upon the sides of the swaged tooth, compressing the swaging to any desired guage and tapering the tooth downward and backward from point, making a perfect clearance, with face and point always the widest. This is the ideal way to sidedress a saw tooth. The shaper saves the steel instead of filing it away. It tends to keep the teeth straight and in line, evens the swaging, leaves a good body to the tooth for subsequent swaging and it is rapid in operation, sidedressing from 30 to 40 teeth per minute, as commonly used by saw filers. It is worth while to aim for the best possible results in swaging and sidedressing, as you will thus have fewer bad cuts, fewer saws come off, and less work in hammering and tensioning. Our Swage Shapers are now used in thousands of mills and factories, on all kinds of band and gang saws, and are indispensable to perfect sidedressing.

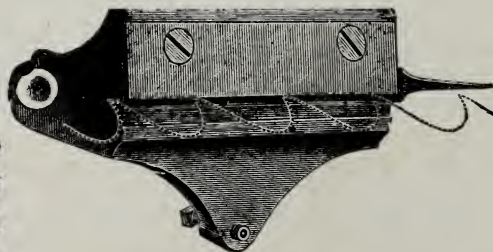
DIRECTIONS FOR USE.—Swage your saws. Next start your automatic sharpener and grind around once to remove any burr or feather edge on face of tooth. Next sidedress the teeth with shaper. Then finish sharpening. **NEVER USE SHAPER ON NEWLY SWAGED TEETH UNTIL ONCE SHARPENED.** Tooth stop must be lowered so that it will strike in throat of saw. The width of the swage after sidedressing is determined by the amount of bevel on the jaws that come in contact with the swaged point.



No. 417, Mershon Pressure Sidedresser, \$15.00. Code word, Mershon.



No. 29 Bolton Swage Shaper \$15.00.



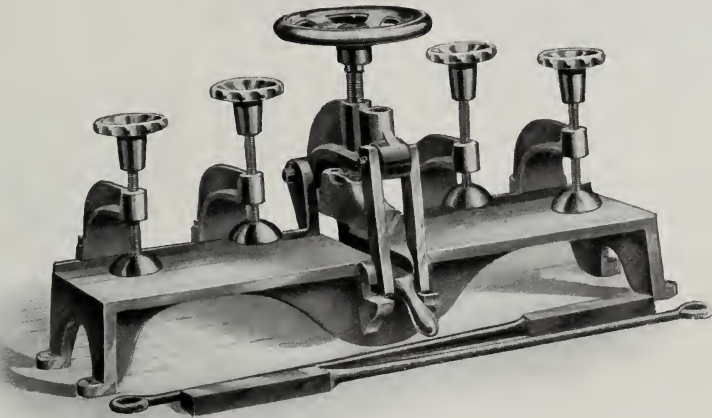
No. 133 Bolton Band Resaw File Sidedresser \$25.00.
Bevel to any guage. Use common 6 inch files.
Guides from top to tooth Nickeled Dresses one side.

A pressure sidedresser for band or gang saws, 17 guage or thinner. May be furnished for log bands or gangs. Code word, Necessary. Weight, boxed 4 pounds.

Bolton Six or Nine Inch Brazing Clamp

Our Brazing Clamps for medium width log bands or band resaws are convenient, powerful machines, which render the process of brazing an easy and successful one for any saw filer. The bed and back for saw are planed surfaces. The smaller sized machine is adapted to saws up to 6 inches wide, and the larger sized machine is adapted to saws up to 9 inches wide. The lower heating iron rests on a sliding wedge, which fits in a planed way, affording a square, even rest for the iron, and maintaining its surface in any position with the surface of the table for saw. When the lap is ready, by drawing out the wedge a short distance, the lower iron may be handily removed, heated and replaced as before. The wedge readily accommodates any thickness of iron and brings the face of the lower iron, whatever its thickness, flush against the saw. This feature is one of material convenience and advantage. These machines are especially designed for patch brazing, having an extra socket for clamp screw for use in brazing in patches.

The machine has invariably given satisfaction.



(Sold with unqualified warranty)

No. 19, 6-inch Machine, complete with irons, Price.....				\$15.00
No. 20, 9-inch Machine, complete with irons, Price.....				20.00
Approx. Weight	Floor Space	Code Word		
No. 19, 135 lbs.	10x15x30 in.	Superior		
No. 20, 285 lbs.	12x17x32 in.	Superiority		

BOLTON PONY BAND OR BAND RESAW FILING CLAMPS.

A filing clamp or vice is a necessary device for use in fitting up band resaws. Our clamp is very quick and handy, made of iron throughout, and should be mounted on a stand or bench in line with saw, next to sharpener. The clamps have planed jaws, giving a perfect bearing on saw, and are clamped or released instantly. The rests for back of saw are adjustable to suit any width of saw within the capacity of the machine.

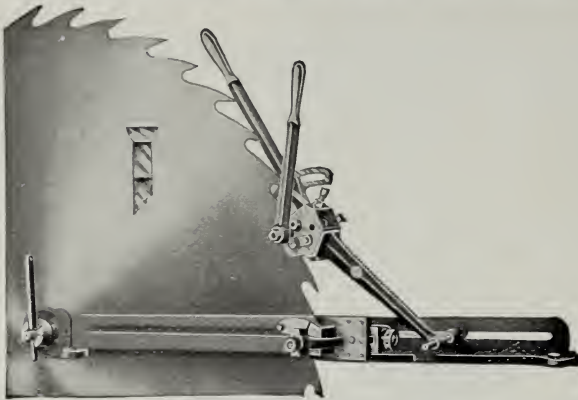


No. 25, 36-inch Filing Clamp for Saws up to 7-in. wide, f. o. b. Grand Rapids.....	\$15 00
No. 26, 42-in. Filing Clamp for Saws up to 10-in.. wide, f. o. b. Grand Rapids.....	\$20 00
Approx. Wght.	Floor Space
No. 25, 75 lbs.	10x12 in. x 38 in.
No. 26, 120 lbs.	12x14 in. x 44 in.
Code Word,	
No. 25, Expedient	
No. 26, Expediency	

(Sold with unqualified warranty)

10 per cent. advance in price for boxing and delivery at New York for export.

Hanchett Band, Gang and Circular Saw Swages

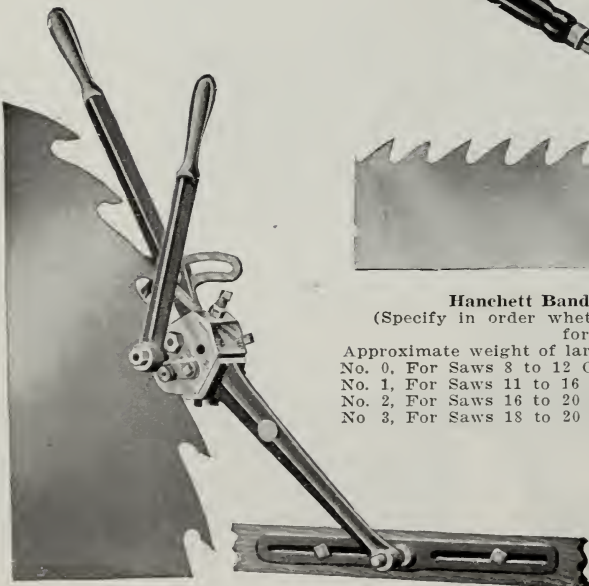


Style A-4 Hanchett Circular Swage with Bench Attachment and Jointer

There has always been a demand for saw-fitting attachments, and to satisfy this demand this swage has been placed upon the market with the following attachments: A long bench casting of malleable iron, which is a very handy device upon which to do fitting of all kinds of circular saws, and a jointer for jointing or rounding the saw.

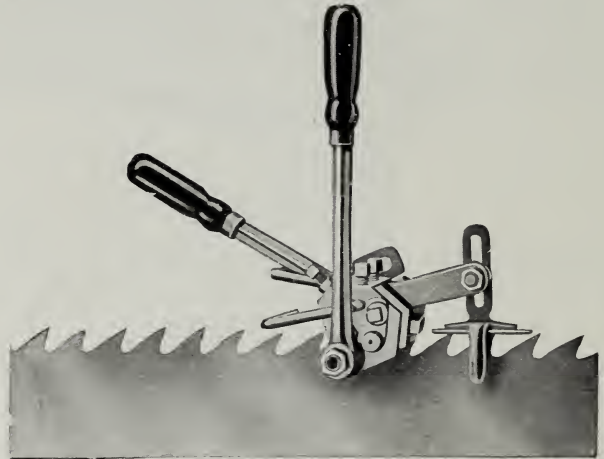
We have sold a great many of this style and they have always given the best of satisfaction. The jointing is done by a piece of ordinary mill file held firmly in place by a set screw and adjusted by a hand wheel. It is a simple machine, practically impossible to get out of order, and is just what every filer wants to use every day.

Large Swage, 25 lbs.		Box, 8x8x27 inches high.	Jointer and Bench Attachment, 32 lbs.	4 feet long.
Style A-4.	No. 1	For Saws 5 to 10 Guage	\$42 00	Easier
Style A-4.	No. 0	For Saws 8 to 12 Guage	42 00	Disease
Style A-4.	No. 2	For Saws 11 to 16 Guage	38 00	Easily
Style A-4.	No. 3	For Saws 16 to 18 Guage	35 00	Eased
Style A-4.	No. 4	For Saws 18 to 26 Guage	35 00	Easement



Style A-5 Hanchett Circular Saw Swage.

Style A-5.	No. 1.	For Saws 5 to 10 Guage.	\$35 00
Style A-5.	No. 0.	For Saws 8 to 12 Guage.	35 00
Style A-5.	No. 2.	For Saws 11 to 16 Guage.	33 00



Hanchett Band, Gang or Band Resaw Swage.

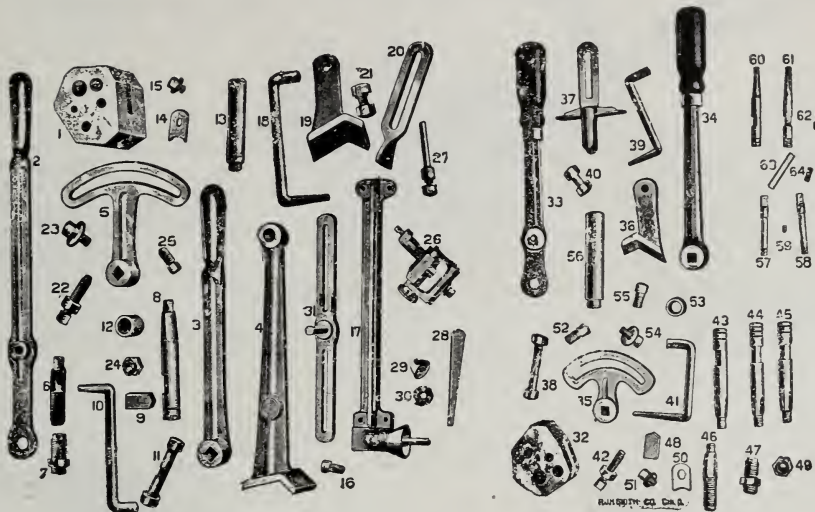
(Specify in order whether for bands, gangs or resaws, and for what guage.)

Approximate weight of largest size, boxed, 15 lbs.	Box, 7x7x18.
No. 0, For Saws 8 to 12 Guage, inclusive..	\$35 00 Obb
No. 1, For Saws 11 to 16 Guage.....	33 00 Good
No. 2, For Saws 16 to 20 Guage.....	28 00 Goodly
No. 3, For Saws 18 to 20 Guage.....	28 00 Goodness

Code Word
Distill
Distilled
Distillery

Net Price List of Hanchett Swage Repairs

F. O. B. Grand Rapids, Mich.,



Circular Repairs

Band or Gang Repairs

When ordering parts, always give number of part wanted. Also give size of swage, whether No. 1, 2, or 3. Also, to insure against any error, it is well to say what kind of saws Swage is used on—circular, band or gang. When it is desired to have goods sent by mail or prepaid express, cost of same is added to price of goods.

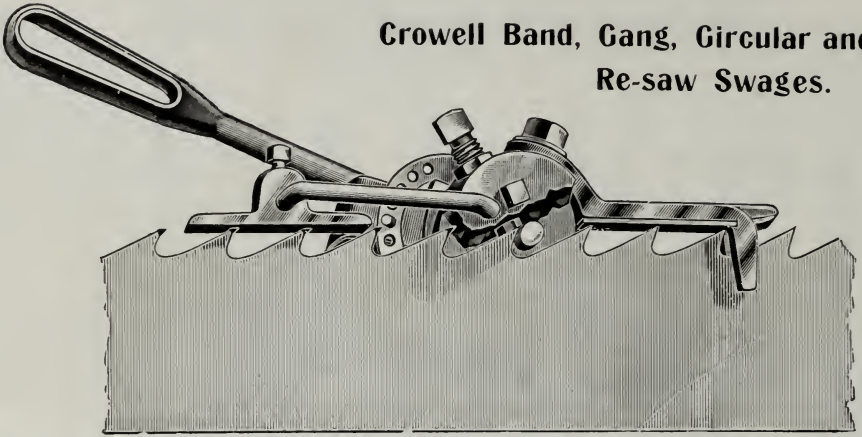
Circular List.

No.		Size No. 1	Size No. 2
1	Head.....	\$12 00	\$10 00
2	Die Lever.....	2 00	1 50
3	Clamping Lever.....	2 00	1 50
4	Bracket.....	3 00	2 00
5	(Slotted) Die Adjuster.....	2 00	1 50
6	Lever Clamping Screw.....	65	50
7	Stationary Clamping Screw and Nut.....	60	50
8	Eccentric Die.....	1 25	1 00
9	Anvil.....	75	50
10	Lever Rest.....	75	50
11	Eccentric Bolt and Nut.....	75	50
12	Hardened Steel Die Bearings, per pair.....	1 25	1 00
13	Punch for removing and inserting Die Bearings.....	50	40
14	Die Latch.....	20	20
15	Screws and Washer for Die Latch ..	20	20
16	Cap Screw for Bracket, each.....	15	15
17	Bench Casting.....	3 00	3 00
18	Back Rest for Style A2.....	75	
19	Bracket for Style A2.....	1 75	
20	Front Rest for Style A2.....	75	
21	Bolt and Nut for Front Rest.....	50	
22	Anvil Adjusting Screw and Nut.....	50	
23	Bolt and Washer for (Slotted) Die Adjuster.....	25	25
24	Nut for Die or Clamping Screw.....	10	10
25	Set Screw for Lever Rest.....	25	25
26	Jointer.....	5 00	5 00
27	Bracket Pin and Nut.....	1 00	1 00
28	Jointer Key.....	25	25
29	Saw Cone (any size).....	1 00	1 00
30	Step Washer.....	75	75
31	Slotted Bench Casting for Style A5.....	1 00	75
32	Head.....	\$10 00	\$ 8 00

Band or Gang List.

No.		Size No. 1	Size No. 2, 3
33	Die Lever.....	1 50	1 00
34	Clamping Lever.....	1 50	1 00
35	(Slotted) Die Adjuster.....	1 50	1 00
36	Bracket.....	1 50	1 00
37	Fork.....	1 25	1 00
38	Eccentric Bolt and Nut.....	40	
39	Lever Rest.....	50	40
40	Fork, Bolt and Nut.....	40	30
41	Back Rest.....	50	40
42	Anvil Adjusting Screw and Nut.....	40	30
43	$\frac{3}{4}$ inch Eccentric Die.....	1 00	
44	$\frac{3}{4}$ in. (9-16 in.) Eccentric Die.....	1 00	
45	$\frac{3}{4}$ in. ($\frac{1}{2}$ in.) Eccentric Die.....	1 00	
46	Lever Clamping Screw.....	50	40
47	Stationary Clamping Screw and Nut.....	50	40
48	Anvil.....	50	40
49	Nut for Eccentric Die or Clamping Screw.....	10	10
50	Latch for Eccentric Die.....	25	15
51	Screw and Washer for Latch.....	20	15
52	Set Screw for Holding Back Rest or Lever rest.....	25	20
53	Hardened Steel Die Bearings, per pair.....	1 00	75
54	Bolt and Washer for Adjusting Circle.....	25	20
55	Screw for Bracket, each.....	15	10
56	Punch for removing and inserting Bushings.....	40	30
57	5-16 inch Eccentric Die for No. 3 Swage.....		75
58	$\frac{1}{4}$ inch Eccentric Die for No. 3 Swage.....		75
59	Set Screws for holding Lever to place 7-16 inch Eccentric Die for No. 2 Swage.....		10
60	$\frac{3}{4}$ inch Eccentric Die for No. 2 Swage.....		75
61	Set Screw for holding Anvil Bar in No. 2 Swage.....		15
62	Bar for holding Anvil in No. 2 and 3 Swages.....		20
63	Set Screw for holding Anvil Bar in No. 3 Swage.....		10

**Crowell Band, Gang, Circular and
Re-saw Swages.**



Crowell Band Swage Showing Position of Tooth.

Finely constructed and easily adjusted. Made in sizes to fit any thickness of Saw Plate; works equally well on Band or Circular Saws; spreads and swages the teeth with the least possible waste, and does perfect work without front guard or back-stop, although these are convenient and always supplied.

These Swages are made of the finest material obtainable, and are giving satisfaction in many manufacturing plants.

THE DIFFERENT SIZES ARE AS FOLLOWS:

No. 0—Is the same as No. 1, only it has 5-16 Die for shallow teeth; it is generally used on 20 to 22 guage saws, \$20.00. Weight, $2\frac{3}{4}$ lbs. Die is 5-16 inch inch, with oval end.

No. 1.— Is suitable for all saws from 16 to 22 guage, and will fit teeth one inch or further apart. \$20. Weight, $2\frac{3}{4}$ lbs. Die is $\frac{3}{8}$ inch, with oval end.

No. 2—Is suitable for all saws from 12 to 16 guage, and will fit teeth one and a quarter inches or further apart. \$25.. Weight, 7 lbs.

No. 3—Is suitable for all saws from 9 to 12 guage, and will fit teeth one and one-quarter inches or further apart. \$28. Weight, 10 lbs.

No. 4—Is suitable for all saws from 6 to 12 guage. \$30. Weight, 12 lbs.

There are hundreds of the SWAGES in use in Saw and Planing Mills, Sash, Door, Wheel and Furniture Factories, Pattern Shops, Novelty Works, Stave and Heading Mills, Box Factories, Car Shops, Locomotive and Veneer Works, Piano and Organ Factories. Send templet of teeth and gage of saw with order.

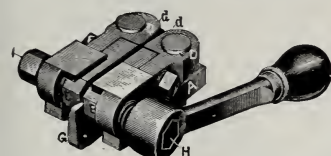
Customers having old style hexagon head lie will be furnished free new lever to fit oval head dies that we now supply on repair orders. Describe old die.

CROWELL SWAGE REPAIRS.

DESCRIPTION OF PARTS	No. 0. & 1	No. 2 & 3	No. 4
Die Handle No. 0 and 1.....	\$ 75		
Die and Screw Handle.....	75	\$1 00	\$1 50
Head or Body.....	5 00	7 00	9 00
Back Rest Rod.....	50	75	75
Die. No. 0 & 1, (Oval head).....	85		
Anvil	30	40	50
Back Stop and Spring Pin.....	2 00	3 00	4 00
Front Guard for Circular Saws.....	1 75	1 75	2 50
Die (Hexagon head).....	85	1 15	1 50
Front Guard for Band Saws.....	1 75	1 75	2 00
Die Holder.....	25	50	75
Anvil Screw and Nut.....	50	50	75
Stationary Clamp Screw.....	50	75	1 00
Handle Clamp Screw.....	75	1 00	1 25
Screw and Washer for Front Guard.....	50	50	75
Screw for Back Stop Plate.....	25	50	75
Side Screw for Anvil.....	25	50	75
Back Stop Plate.....	75	75	1 00
Collar and Screw for Die.....	25	50	75
Screw to hold No. 11.....	25	50	75
Back Rest and Set Screw.....	50	75	1 00

Swage Shapers or Pressure Sidedressers for Band, Gangs, Circular and Resaws

Pribnow Swage Shaper.



Price, \$25.00
No. 129 For Log Bands.
No. 129A For Log Gangs.
No. 129B For Log Circulars.
No. 129C For Resaws.

Code word.
Necessitate.
Necessit.
Neces.
Nec.



Weight.
Boxed, 6 lbs.



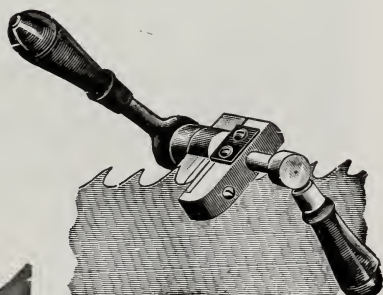
No. 68—Bolton Circular Swage Shaper for
saws 13 to 20 gauge, \$15.00. Code
word, Bolt. Weight, boxed, 6 lbs.



Turner Torch, \$5 00.

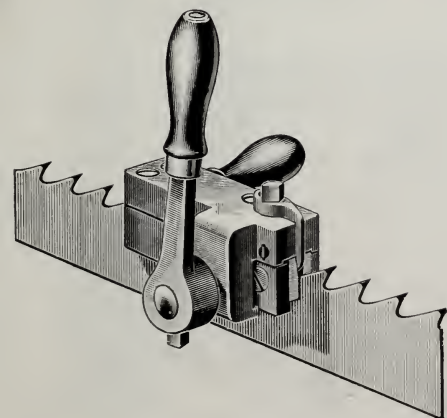


Top Jointer, \$3 00. Postpaid, \$3 00.



No. 130 Weston Pressure Side Dresser for
Band and Gang Saws, \$25.
Weight, boxed, 6 lbs.
Code word, Weston.

No. 130A for Band Resaws, \$15 00
No. 230 for Circular Saws, \$25 00.
Code word, Circle. 7 lbs.

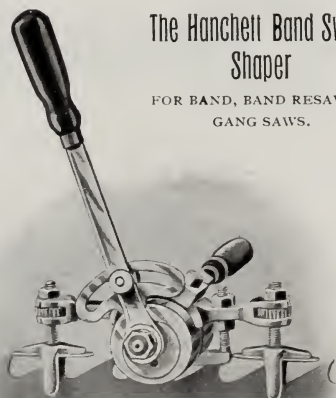


Crowell Swage Shapers.

No. 1, for Bands or Gangs, \$20.
No. 2, for Band Resaws... 15.

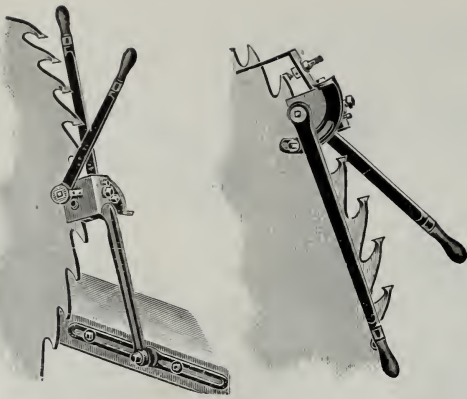
The Hanchett Band Swage Shaper

FOR BAND, BAND RESAW OR
GANG SAWS.

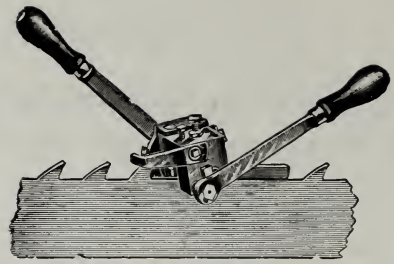


Code Word

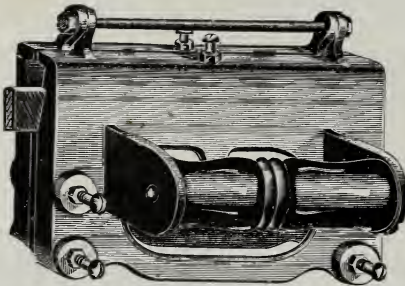
No. 1. For Saws from 8-13 Gauge... 25 00 Light
No. 2, For Saws from 12-18 Gauge... 20 00 Lighted
No. 3, For Saws from 18-26 Gauge... 20 00 Lighting



No. 166 Crescent Large Circular Swage.....\$28 00
 Net 12 lbs. Boxed 20 lbs. 28x7x7 inch.
 No. 165A Crescent Light Circular Swage...\$28 00

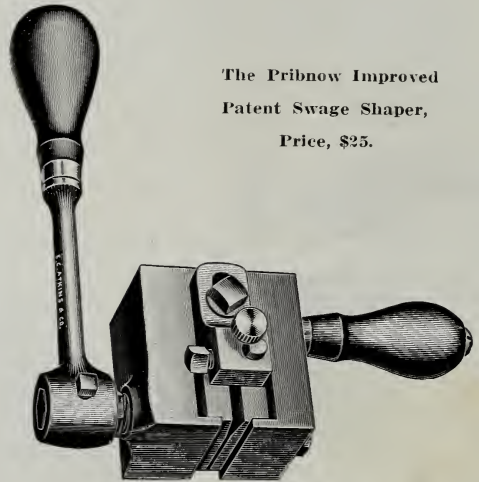


No. 164 Crescent Band Swage.....\$28 00
 No. 165 Crescent Gang Swage..... 28 00
 Net weight, 5 lbs. Boxed, 12 lbs. 14x6x5 in.
 No. 164A Crescent Band Resaw Swage, \$28 00
 Net 3 lbs. Boxed 5 lbs.
 No. 164B Crescent Thin Band Resaw
 Swage.....\$28 00
 Net 2 lbs. Boxed 5 lbs.



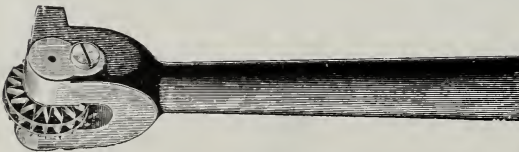
No. 30 Bolton Gang and Band Saw Side-dresser.

Bevels both sides at once to any gauge. Guides from top of tooth. Use common files. Expressed on receipt of price, \$4 00. Code word Dress. For saws 6 inches or wider.

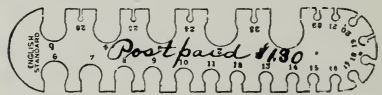


The Pribnow Improved
 Patent Swage Shaper,
 Price, \$25.

This Shaper is made in three sizes, for Bands, Gangs, Circulars and Resaws.
 No. 4 for Saws from 6 to 10 gauge.
 No. 5 for Saws from 10 to 16 gauge.
 No. 6 for Saws from 17 to 24 gauge and thinner.



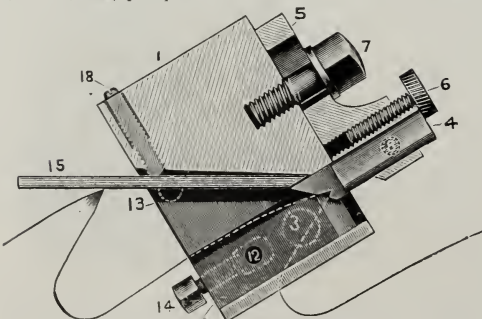
Emery Wheel Dresser.
 Will true Emery Wheel while running at full speed. Price with cutters,\$1 00, postpaid. Price of extra cutters per set, 20c, postpaid.



No. 228 Side File for Large Band Saws, \$2.50
 Code word, Sketch. This cut illustrates a new Side File. The Gauge is guided from the top of the tooth. The file can be adjusted to give any shaped tooth. The front view and the end view will give an understanding of this useful tool.

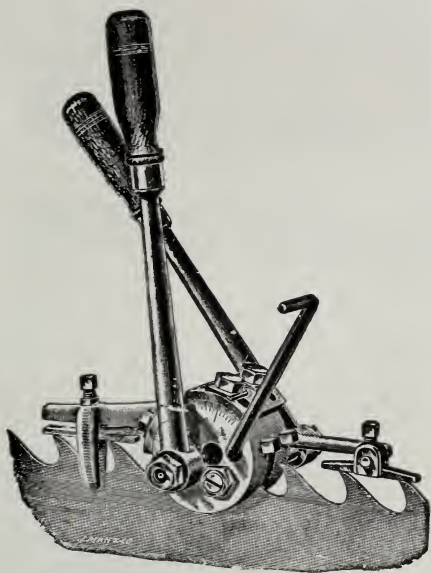
List of Parts

No. 1--Base Block.....	\$10 00
No. 2--Clamping Lever	1 00
No. 3--Clamping Screw	75
No. 4--Tooth Gauge	1 50
Nos. 9 and 10--Clamping or Shaping Jaws, each	1 50
No. 16--Grinding Gage or Holder.....	1 50



Pribnow Shaper

The White Patent Swage for Bands, Gangs, Circulars and Resaws.

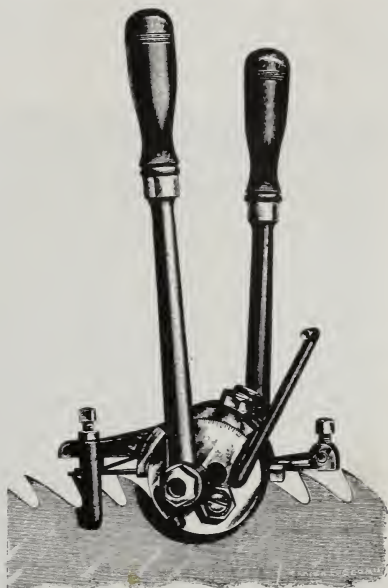


No. 183, White Log Band Swage, 13 lbs \$35. .

This machine is our standard swage for saws of ordinary width and thickness. The block is 3 inches in diameter, the die and clamp screw each $\frac{5}{8}$ of an inch in diameter, and the lever operating the die and clamp screw are 12 inches long.

No. 185. White Band Resaw Swage, 9 lbs., \$30.

This swage possesses all of the movements and advantages of our large band saw machine, but is only about three-fourths the size, the block being $2\frac{1}{2}$ inches in diameter, the clamp screw and die each 7-16 inch in diameter, and the levers $8\frac{1}{2}$ inches long. This machine is especially adapted for use on band resaws and thin gang saws and will swage any thickness from 15 to 24 guage.



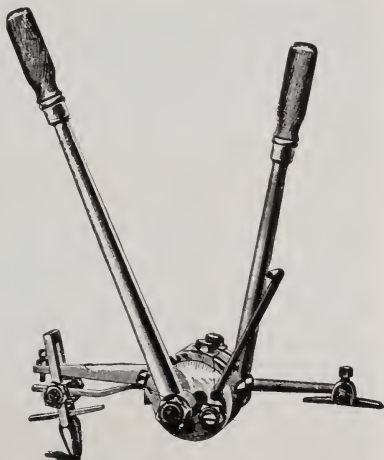
No. 184, White Gang Swage, 13 lbs., \$35.

This swage is especially adapted for gang saws; the brackets on each side of the block being very short so that the machine can be worked the full length of the saw and not interfere with the tabs. The block is 3 inches in diameter, die $\frac{5}{8}$ inch in diameter, and handles 12 inches long, so that practically it is the same size as our standard band saw swage, but the arrangement of dies being somewhat different it is particularly suited for gang saw use.



No. 186. White Heavy Circular Saw Swage, 26 lbs., \$35.

We here illustrate our improved swage for large thick circular saws, from 4 to 40 gauge. This machine is improved with a bracket arm for fastening to the saw bench, as shown in cut, and the saw is revolved on an arbor while being swaged, the arbor closely fitting the eye of the saw in order to secure uniform work. This machine is very strong, the block being $3\frac{1}{2}$ inches in diameter, die $\frac{7}{8}$ inch in diameter and the handle operating the die two feet long.



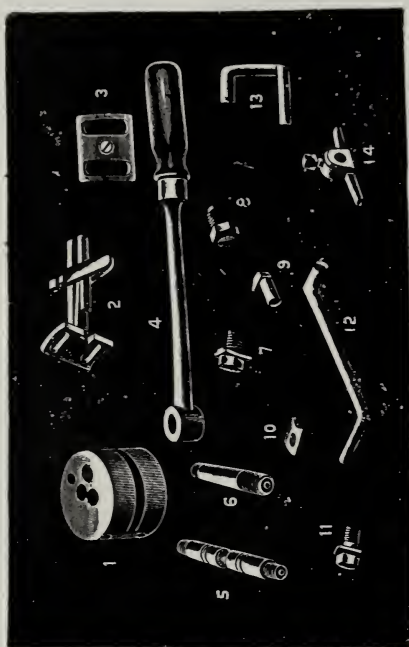
No. 187, White Thin Circular Saw Swage, 14 lbs., \$35.

Illustrated herewith is our swage for thin circular saws, the machine being provided with brackets which can be adjusted to fit the pitch of any saw and will swage nicely saws of ten gauge or thinner. The die is $\frac{5}{8}$ inch in diameter, and block 3 inches in diameter. Unlike our large machine for heavy circular saws this swage is not attached to the saw bench.

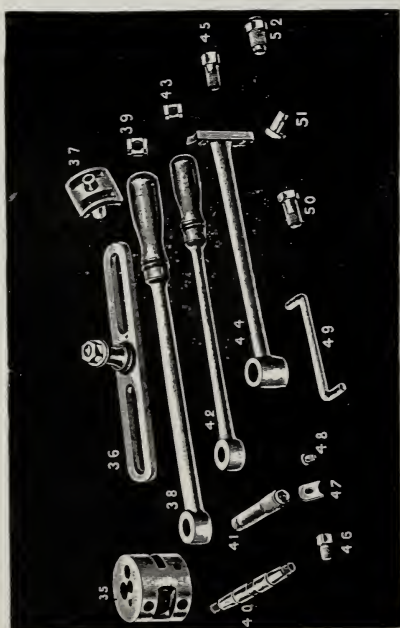
White Saw Swage Repairs

F. O. B. Grand Rapids, prepayment by registered mail or express extra.

CAUTION—When ordering White Swage Repairs be sure to mention the style of swage, the number of the part as per illustrated plate of parts and if an anvil is wanted give number on side of same.



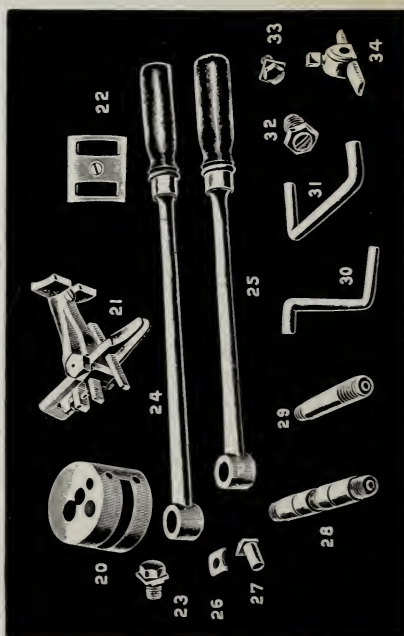
Parts of White Band Gang and Resaw Swages



Parts of White Large Rotary Swage

Price List of Parts

For Bands and Gangs		For Band Resaws		For Thin Circular Saws		For Large Rotary Saws	
No.	PRICE	No.	PRICE	No.	PRICE	No.	PRICE
1	\$12 00	1	\$10 00	20	\$12 00	35	\$12 00
2	3 75	2	3 25	21	5 00	36	2 00
3	3 50	3	3 00	22	3 50	37	3 50
4	1 75	4	1 50	23	75	38	2 25
5	2 00	5	1 50	24	2 00	39	35
6	1 25	6	1 00	25	1 75	40	3 00
7	75	7	65	26	30	41	1 50
8	85	8	75	27	1 25	42	1 75
9	1 25	9	1 00	28	2 00	43	35
10	30	10	25	29	1 25	44	3 00
11	55	11	45	30	1 25	45	50
12	1 25	12	1 00	31	1 00	46	10
13	1 00	13	85	32	85	47	30
14	1 10	14	95	33	55	48	05
				34	1 10	49	1 25
						50	25
						51	1 50
						52	85



Parts of White Thin Circular Saw Swage

Adjustable Pulleys and Post Brackets For Band Saws.



24 Inch Diameter Band Resaw Pulleys suitable for saws 6 inches wide or less. Net 125 lbs, Crated 175 lbs.

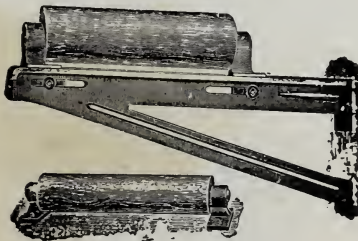
36 Inch Diameter Band Saw Pulleys suitable for saws 8 inches wide or less. Net 170 lbs, Crated 245 lbs.

(For use with sharpener or Filing Vise)		Code word
No. 37, 24-inch Pulleys, per pair.....	\$15 00	Pull
No. 38, 36-inch Pulleys, per pair.....	20 00	Puller
No. 38A 42-inch Pulleys, per pair.....	25 00	Pulling
No. 38B 48-inch Pulleys, per pair.....	30 00	Pulled

No. iron floor stands for pulleys furnished at above prices.

We manufacture pulleys for support of band saws, in a number of different sizes and styles, both with and without bracket flanges for support of saw and with and without iron stands on which to mount them. Some prefer to use pulleys for support of saw about sharpener, the saw being fed around with a single front feed pawl; others prefer to have sharpener equipped with a front and back feed pawl and to support the saw on a set of adjustable post brackets. Some make use of a combination pulley and bracket device. We can furnish equipment in this line suitable for any width or length of saw, as customer directs.

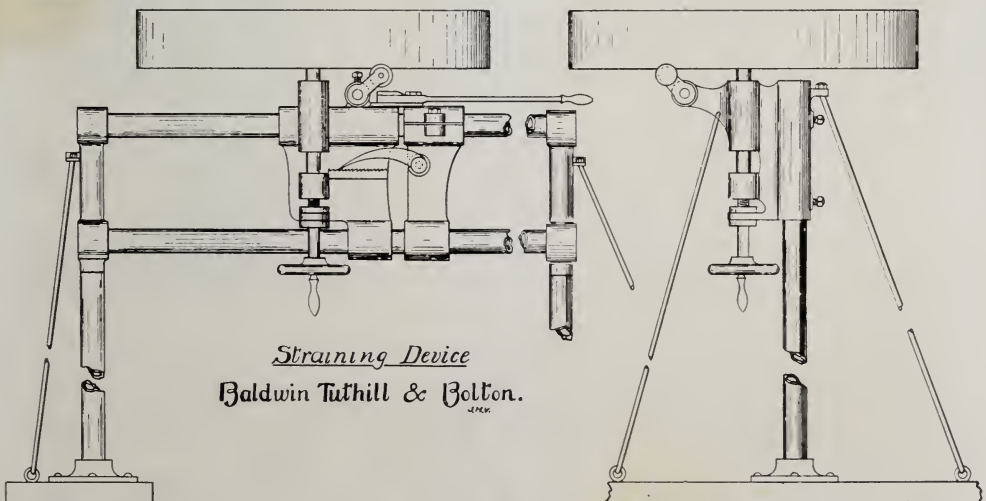
Our pulleys are laid up of wood strips, turned and balanced, and first class in all respects. Pulleys not mounted on iron floor stands, may be cheaply erected on small horizontal timber run under sharpener at suitable height from floor or on wood stands as preferred.



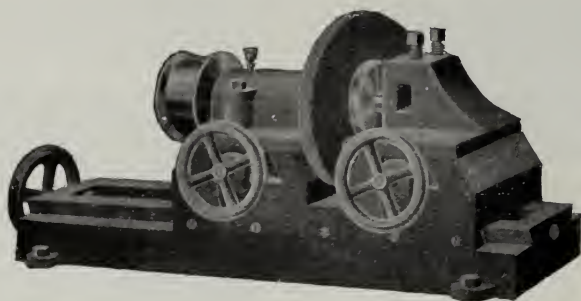
A set of three or four brackets and floor rolls for handling a band saw around or above the hammering bench is desirable. There is nothing better for the purpose made than the equipment illustrated. Saw hammering and fitting tools—refer to cut and price list of saw tools.

Wall Brackets with Roll.....	\$ 5 00
Floor Rolls, each.....	2 00
Per Set of 3 each 250 lbs.....	20 00

Code word, Brackets.



No. 38C—Adjustable Pulley and Post Bracket Straining Device for No. 2 or No. 3A or 3D Bolton Band Sharpener, 36 inch pulleys, as shown, \$25.00. Approx. weight 350 lbs. Code word, Strainer.

Keep Your Band Resaw Wheels Perfectly Faced.

No. 27-B Bolton Band Resaw Wheel Grinder, with Tool Attachment. Adapted to Grind or to Turn the Wheel with Tool. Suited to all Types and Sizes of Band Resaw Wheels Having an 8 inch or less width of face, any diameter.

Price Complete with one Emery Wheel and Tool, f. o. b. Grand Rapids, \$60.				
Approx Weight,	Driving Pulley	Speed	Floor Space	Code Word
Crated. 330 lbs.	5-in.	1230 to 1500	12x36 inch	Coresult
	3-Inch Belt		18-inch high	

10 per cent advance for machines boxed f. o. b. cars New York for export.

A Machine of the Greatest Utility and Economy.

The need of keeping the wheels on Band Resaw Mills practically true or properly faced at all times is understood by every practical man, and for this purpose the Bolton Band Wheel Grinder is pre-eminently adapted, having never failed in a single instance to perform satisfactory work on any type or size of log band or band resaw mill. It is provided with an emery wheel for grinding, and also a tool attachment for turning, and when the wheel is badly worn or out of true, a light cut may be taken with a tool, this followed with a smoothing grind of an emery wheel, thus insuring perfect facing in a minimum time. The machine is thoroughly well built, the slides being particularly heavy and hand-scraped to bearing, and an abundance of metal being used to render the machine free from vibration. Nothing better can be secured for the purpose.

Every operator of a log band or resaw mill can far better afford to equip with one of these machines than he can afford to run his mill with the wheels badly worn and out of true, a sure cause for cracked saws, miscut lumber and much extra labor and trouble for the filer.

We Also Build 2 Larger Sizes, 12 and 16 inch for Log Band Mill Wheels.

J. J. SITZLER, FILER JAMES H. DYKEMAN, BROOKLYN, N. Y.: I have used the Bolton Band Wheel Grinder and it is O. K. and does splendid work.

SALSICH & WILSON, STAR LAKE, WIS., E. L. WILSON, FILER: Some one has stolen the catalogue you sent me a year ago, and I wish you would send me another. The Bolton Grinder you sent us for turning off the band mill wheels is the best I have ever used.

ANDERSON-TULLY CO., VICKSBURG, MISS.: Give us your very lowest price on your machine for grinding off the face of band wheels. We think you make the best machine of this kind there is on the market. We received the patch machine and are sure it will give satisfaction.

E. W. LEECH, LODI, OHIO: Your Bolton Band Wheel Grinder gives us the best of satisfaction. There was a marked difference in the running of the saws after its use.

Lap Cutting Or Lap Grinding Machines

Large Cuts on Request.

The preparation of laps on band resaws, preparatory to brazing, may be accomplished by hand filing, or by the use of a lap grinder or lap cutter, the machines illustrated being made in 8-inch capacity, as described. Both machines are efficient and in extensive use.



(Sold with Unqualified Warranty)

No. 22, For Saws under 14 inches
f. o. b. Grand Rapids, Mich., \$90 00

No. 23, For Saws under 8 inches wide,
f. o. b. Grand Rapids, Mich., \$75 00

Approx. Wgt.	Driving Pulley	Speed
No. 22, 385 lbs.	9 in ; 2 in.	Belt 100
No. 23, 335 lbs.	9 in., 2 in.	Belt 1 0

Floor Space	Code Word
25x18 in.; 42 in. high	Universal
14x18 in.; 40 in. high	Unicelally

10¹ Per Cent. Advance in Price for Boxing
and Delivery f. o. b. New York for
Export.

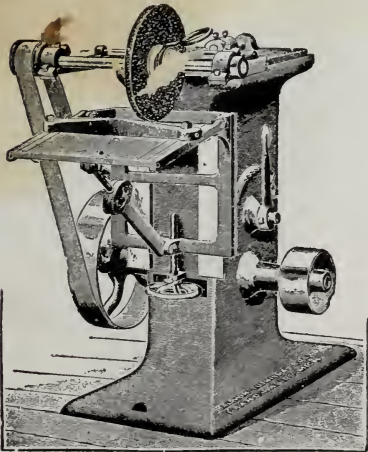
The Bolton Band Saw Lap Cutter.

A hand or power machine. When run by power at 100 revolutions it mills a lap at the rate of about $\frac{3}{4}$ -inch per minute. The end of saw is clamped to the table, the pitch of which may be varied to suit the width of lap desired. The cutter has an automatic feed across the saw and stops automatically at end of cut. It cuts the lap with accuracy, making a smooth, true surface, and its action tends to force the saw plate down firmly upon the table, and thus avoids tendency to cut off too much if there is any high spot. We recommend the use of good lard oil, as this prolongs the life of the cutter and insures the smoothest surface. The cutters are of approved make, of the best steel and finest temper, and ordinarily give long service. Two cutters of approved type are furnished with each machine, and the relative cost of these is less than that of emery wheels. Price of new cutters, \$1.50. Our cutters are now made with forty spiral teeth. When ordering cutters give date of purchase of machine.

We recommend the Lap Cutter as a very efficient machine on saws of ordinary temper. The cutter will not stand extremely hard steel, but hard saws or spots, if annealed with brazing iron, may be cut easily and perfectly. The cutter affords a smoother and more perfect joint than the emery wheel.

The Bolton Band Saw Lap Grinder.

The wheel in grinding has two movements, forward and backward, automatically, across the arbor by hand. The motion of the wheel keeps it perfectly square-faced and true, with no dressing required. The machine will grind a smooth, true lap, free from hollow spots, and requires but little, if any, draw filing to finish. The grain of cut runs lengthwise of the saw and fans every particle of steel and emery away from cut. The clamp holds the saw close to the surface being ground. The pitch and height of table are readily varied by thumb nut and hand wheel to produce a lap of any desired width. The feed works are inside of column, easy of access. If desired, the automatic feed may be disengaged, making it entirely a hand machine. The machine is furnished with belt, tightener and an emery wheel $\frac{3}{4}$ x9 inches, of proper grade for lap grinding. It is highly important that you use a wheel coarse enough for the work. The ordinary saw gumming wheel is not suitable, unless used merely to finish the lap, a method followed by some filers. We furnish suitable lap grinding wheels with our machine, and can confidently claim for this machine superior merit and high grade construction, and know that for convenience and efficiency it is first-class. The machine has met with a large sale and given general satisfaction.



(Sold with unqualified warranty)

No. 21 for Saw 12 or 14 inches wide, Price,
f. o. b. Grand Rapids, \$100.

Approx. Wgt.	Driving Pulley	Speed
550 lbs	6-in.; 3-in.	Belt 375

Floor Space.	Code Word
18x34 in., 42 in. high.	Best
No. 21A. For 8-in. Band Resaws....	\$85.00

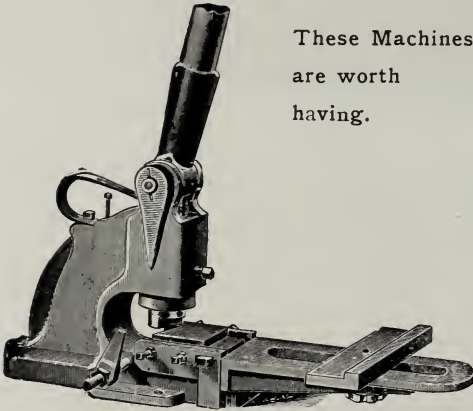
Code Word, Optimus.
10 Per Cent. Advance in Price for Boxing
and Delivery f. o. b. Cars New York for
Export.

BOLTON RETOOTHING AND SHEARING MACHINES

for Saw Shop or Filing Room use.

Used by over 1000 Operators.

Large cuts with full descriptions on request.



These Machines
are worth
having.

(Sold with unqualified warranty)

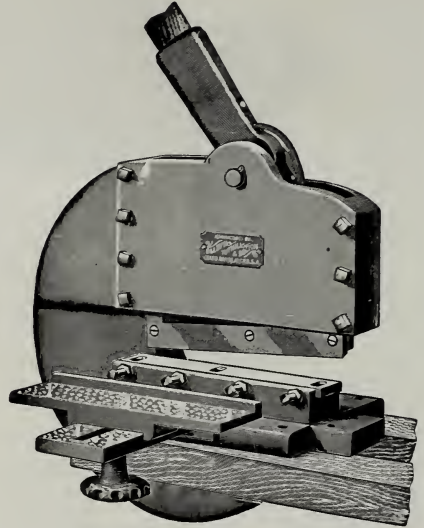
No. 17 Bolton Retoother and Shear
Send Templet of Teeth with Order.

No. 16-Bolton Retoother, dies made to templet.....	\$ 35.00	
No. 17-Bolton Retoother, and Shear, dies made to templet	\$45.00	
Approx Weight.	Floor Space	Code word
125 lbs	12x30 inches.	No. 16 Retooth.
	15 inches high.	No. 17 Sheartooth

For Single or Double Cut Bands, Gangs or Resaws.

This machine is abundantly heavy and powerful for saws of 12 gauge or lighter; is a necessity in every filing room, and has been furnished for bands, gangs, band resaws and light circulars. The guide is adjustable to saws from 2 to 14 inches wide, and may be set to punch teeth at any desired hook. The spacer for teeth will afford a uniform spacing of any length.

The machine is quite indispensable in any band, gang or band resaw filing room.

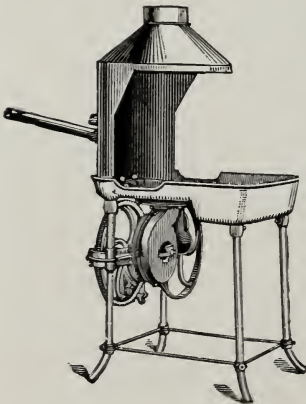


No. 15 Bolton 14 inch Shearing and Cross-cutting Machine, 350 lbs. \$50
Code word, Shearing.

No. 15A Bolton 8 inch Shearing and Cross-cutting Machine \$35
Code word, Shearable.

BRAZING FORGES

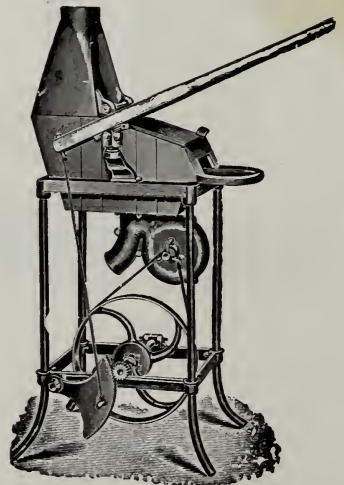
No. 14 Open Hearth Portable Forge



Hearth 22 x 30
Fan 10
Weight 165 lbs
Price **\$20.00**
f. o. b. Grand Rapids
Numerous other styles and sizes

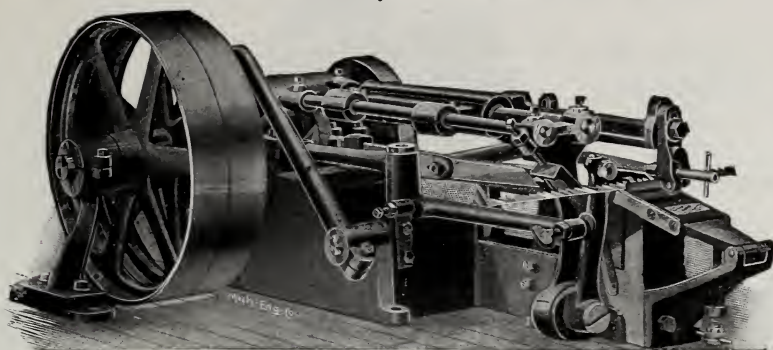
Special Band Saw Brazing Forge No. 41

Price f. o. b. Grand Rapids, **\$30**
Weight 300 lbs.; Floor space 6 sq ft.; For Export 10 cubic ft.; Code word, braze, No. 41 boxed for export f. o. b. New York, **\$40**
This forge is designed only for brazing purposes and is not intended for a variety of work. If you want an all around forge, buy the ordinary open hearth portable.



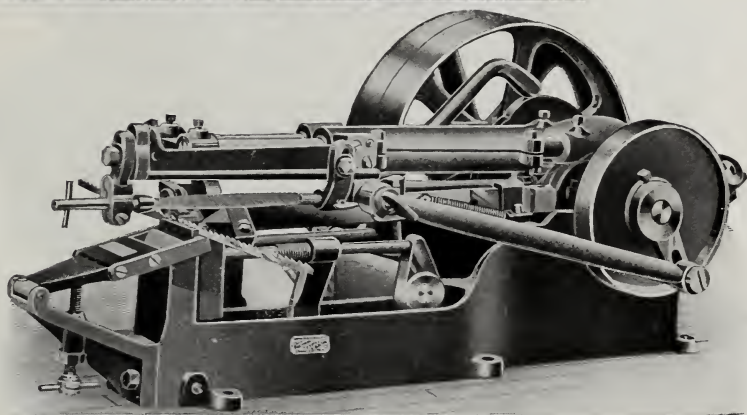
No. 14, Open Hearth Portable Forge

Special Band Saw Brazing Forge No. 41



Bolton
Improved
Automatic
Band Saw
Filer

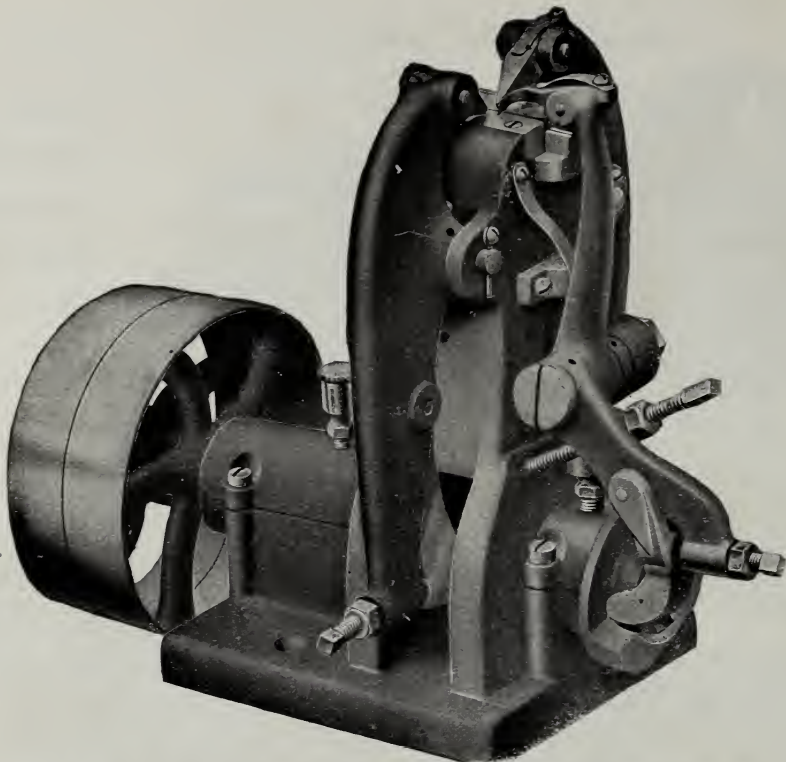
1902 Pattern



No. 40	For Saws $\frac{1}{8}$ to 1 inch wide, Spacing $\frac{1}{2}$ inch or less	\$50 00
No. 40A	For Saws $\frac{1}{8}$ to 2 inch wide, Spacing $\frac{1}{2}$ inch or less	55 00
No. 49B	For Saws $\frac{1}{8}$ to 3 inch wide, Spacing $\frac{1}{2}$ inch or less	60 00
Weight, net 105 lbs; crated, 155 lbs; boxed 180 lbs.		
Measurements 30x18x9 inch. T. & L. pulley 12x1 $\frac{1}{2}$ inch, 50 R. P. M.		

The Bolton Band Saw Filer has been manufactured since 1897, with added improvements from time to time that have been demonstrated by practical every day use on a great variety of saws to be desirable, and we now offer these machines as representative of the very best to be had in completeness and efficiency, as well as in material and labor costs and general intrinsic value. Our sale of these machines has resulted in such uniform satisfaction to our numerous customers that we consider that there can be no question of one of these machines giving satisfaction, unless ordered for saws for which it is in no way adapted, and we expressly request each customer to give us full information regarding the range in width and spacing of the saws to be fitted that we may avoid filing the order if there is any question of its adaptation.

Support saw on pegs, racks or pulleys—in latter case loosely strained to avoid being given any momentum when feeding ahead. Every machine is adjusted to a saw and tested before shipment and will go forward adjusted to any spacing or width of saw as customer directs. We regularly adjust to a 20-gauge saw and readjustment of clamping device is rarely necessary unless saw is more than one gauge heavier or lighter. Adjust saw rest for back of saw so that bottom of gullets of teeth extend about 1-32 inch above top of clamps. Adjust and time the cam that controls clamping lever to clamp instantly after pawl reaches end of forward movement. Clamp saw according to its gauge, snug, but not too tight. The pawl must always push the tooth next to be filed, and as the pawl rides on an adjustable steel shoe, which can be set forward or backward at will, it can readily be made to feed the proper tooth and ride over those behind this tooth, regardless of spacing. The stroke of pawl is adjustable but requires little attention, except to see that the end of forward stroke is right to suit the position of file when in position for filing tooth. To feed tooth farther ahead turn adjusting screw in pawl lever inward, and out ward for opposite effect. The file holders are adjustable and the front holder laterally, and it is regular practice to adjust file to take maximum cut at front end of file. File may be rolled to any angle desired, but in readjusting or changing files see that the pawl feeds saw ahead to suit the cutting edge of file. The machine is readily adjustable to varying requirements and will give satisfaction for saws properly within its capacity. Accompany order with statement as to range in width and spacing and on what you want it adjusted before shipment.



No. 83A. Bolton Automatic Power Band, Hack or Meat Saw Setter, \$40.

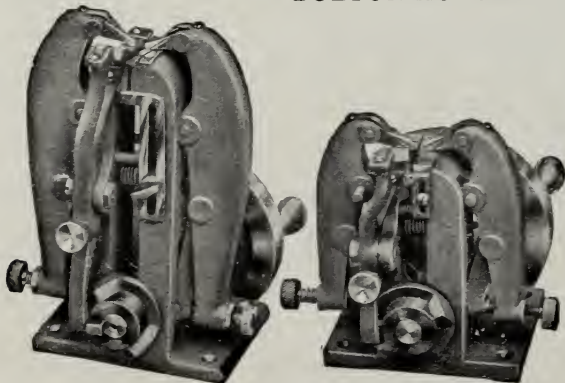
Approx. Weight
45 lbs net, 65 lbs. crated
Floor space.
10x14x17 inches

Pulley
6x1¼ inch. 50 to 100 rev.
Code Word
Powset.

For Saws ⅛ in. wide, with Teeth Spaced Not to Exceed 1¼ in. From Point to Point.

This power setting machine has been produced to meet a demand coming from saw makers or woodworking plants who have a large amount of setting to perform daily and who require a rapid working, well built and lasting machine for this service. It is being used at a speed of 200 teeth per minute, although we would not recommend that it be run in general practice so rapidly, and if a speed of 50 to 75 teeth per minute be rapid enough for actual requirements it should be so run. Each revolution of pulley feeds and sets two teeth.

BOLTON AUTOMATIC POWER BAND SAW SETTER.



(Sold with unqualified warranty.)

No. 82. Setter for saws ¼ to 1 inch wide. Price..\$15 00

No. 83. Setter for saws ½ to 3 inch wide. Price.. 20 00

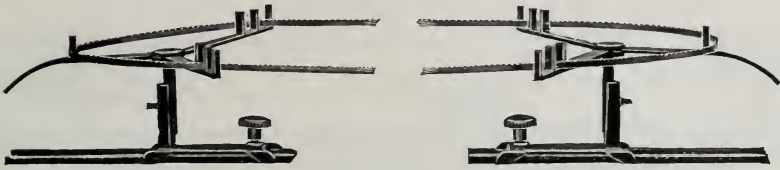
OPERATED BY HAND WHEEL.

No. 82, net 20 lbs, crated 27 lbs, boxed 35 lbs.

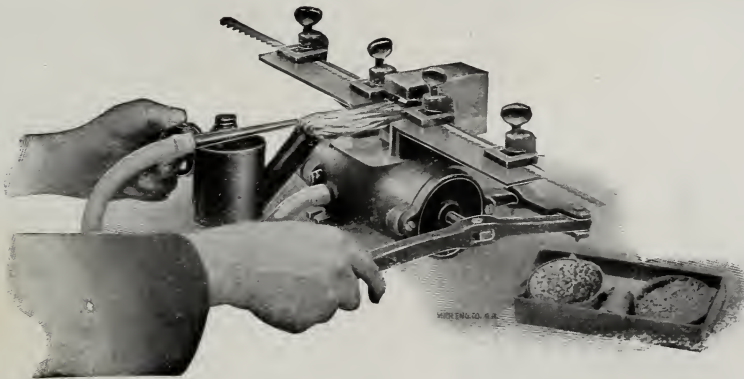
No. 83, net 29 lbs, crated 50 lbs, boxed 80 lbs.

10 Per Cent. Advance on Price for Boxing and Delivery
at New York for Export.

One revolution of pulley or crank feeds and sets two teeth, one to the right and the other to the left, the feedfinger acting on the tooth being set. All these movements are automatic and rapid. The machine gives its blow in such a manner that the tooth stays where set, and as the force of the blow can be instantly regulated by thumb screws at lower end of setting lever it is readily adapted to heavy or light blades and to various grades of temper. The feeds and setting mechanism are strong and powerful, the pawl and hammers being made of finest steel and properly hardened. It has been found perfectly suited to all work within its capacity, giving entire satisfaction. The setters are adapted to teeth spaced from ⅛ to ⅝ inch between points. No. 83 furnished on order for teeth up to 1¼ inch spacing.

**SUPPORTS OR RACKS FOR BAND SAWS.—\$8.**

These supports or Racks are designed for use with Band Filer or Setter and are considered superior to pulleys, there being no resistance to movement of saw and no momentum given saw, as may result from the rapid movements of pawl in feeding a saw strained on a set of wheels. The racks are adjustable vertically or horizontally, to suit varying widths and lengths of saws. It is imperative that whatever device is used to support a saw to a band filer or setter shall permit of a free and uniform feeding of the saw, with no liability of the saw being carried too far or not far enough.

**NO. 84 BAND SAW BRAZER, $\frac{1}{8}$ to $1\frac{1}{2}$ INCH.—\$10.**

Best Made.

Boxed, 7x7x16 Inches.

14 lbs.

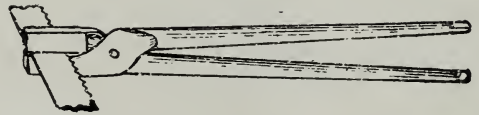
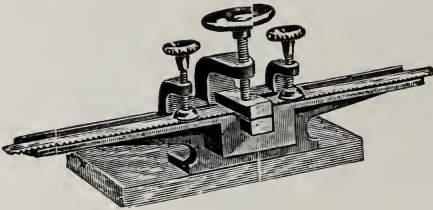
Code Word, Brazzer.

With this device band saw brazing is neither an expensive nor difficult operation, for an inexperienced person can file the laps, braze the saw and dress the joint in from five to ten minutes. It is so designed that one casting answers the purpose of a scarfing frame, brazing clamp and air pump, and all that is necessary to complete the outfit is an ordinary flat file. With each Brazzer we furnish enough wire and spelter to last an ordinary factory two years. While the Brazzer has a capacity for saws up to $1\frac{1}{2}$ inches wide, we recommend the use of regular brazing clamp and irons as more efficient for saws exceeding 1 inch in width. File laps on the right hand end of clamp, making about a $\frac{3}{8}$ -inch lap for saws up to $\frac{3}{4}$ -inch wide, $\frac{1}{2}$ -inch for saws up to $1\frac{1}{2}$ inches wide. File nearly to a knife edge. Place the saw in frame, with the laps in center of opening in frame, and in placing the laps together allow a very little in matching the teeth for the expansion of the teeth when hot. Wind the lap firmly, especially the ends, with a piece of steel wire, and under the last turn of the wire place a small amount of the spelter or solder. Put on plenty of powdered borax, place the block of wood back of the saw, leaving a space for the fire to go around the saw.

A small block of wood opposite the flame should be used, as it aids in holding the heat. Use kerosene oil in the lamp. See that the lamp wick is smooth on top and a little lower than the blow pipe; light the lamp and holding it three or four inches from the saw, pump the blast on the saw until the solder flows freely. Then blow out the fire, remove the block and pump cold air on the joint. File off the surplus solder between the clamps on either side of the flame. ALWAYS USE THE LUMP BORAX, powdering it as you use it, and dampen it before using it. The device is efficient and successful for the purpose and secures a perfect weld and a straight saw.

**Pulleys and Vise Priced Separately.**

No. 87.	Bolton 8-inch Jawed Band Filing Vise. Net 19 lbs, crated 30 lbs.	\$ 8 00
No. 88.	Pair 18-inch Wheels. Net 60 lbs, crated 100 lbs.	10 00
No. 25.	Bolton 36-inch Filing Clamps, 2-7 inch jaws, 75 lbs (Not illustrated)	15 00
No. 26.	Bolton 42-inch Filing Clamps, 2-10 inch jaws, 120 lbs (Not illustrated)	20 00

**BRAZING TONGS.**

No. 89. Bolton 3-inch Brazing Clamp with irons, \$10.
Boxed, 7x11x22 in., 31 lbs. Code word Brazable.

For 2-inch Saws.....\$2 00

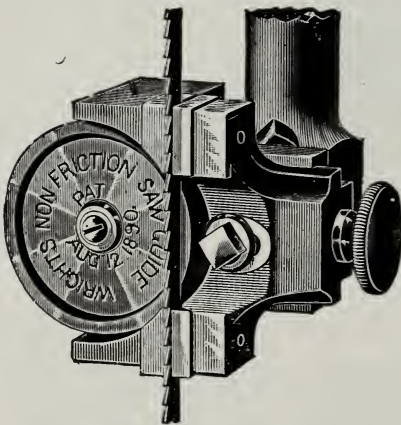
WRIGHT BAND SAW GUIDES, Upper or Under.

No. 0.	1/8 to 1 1/4 in.	\$ 8 00
No. 1.	1/8 to 1 1/2 in.	10 00
No. 2.	1/4 to 2 1/2 in.	15 00
No. 3.	1 to 6 in.	25 00

Warranted. Sent on Trial.

ANSWER THE FOLLOWING:

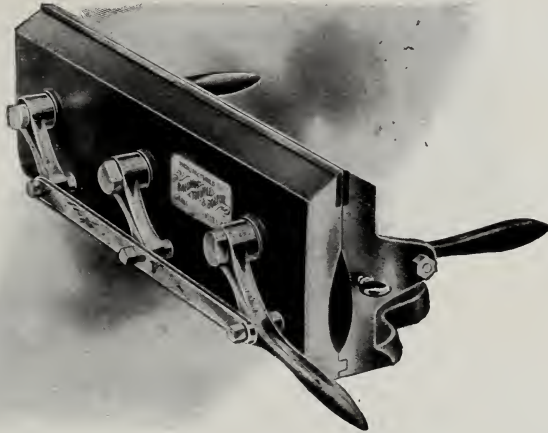
- Give maker's name of machine in use.
- Width of Saws Guides are to accommodate.
- Whether stationary or tilting table.
- Distance from bolt hole or top of bracket to table.
- Give size of hole in lug casting.
- Show position of bolt or lug as you stand facing the machine.
- Give depth and width of slot in bracket if guide bolts to a clevice or opening in frame casting.
- Give distance from bolt to back of the saw.
- Also from bolt head to table and size of bolt.
- Make a rough sketch showing how old guide is fastened to the machine.

**Wright Band Saw Guides****ADVANTAGES.**

1. Has been introduced 10 years. Over 25,000 now in use.
2. Gives a better back and side support to saw than other guides.
3. Does not require wrenches or screw drivers to adjust to different widths and thicknesses of saws.
4. All adjustments are self-locking and cannot be disturbed by uneven saws or jaw of machinery.
5. They have self-oiling and self-adjusting bearings.
6. All wearing parts are constructed so as to be furnished for a mere trifle.
7. Save 60 per cent, of wear and breakage of Saws.

A NARROW BAND SAW FILING ROOM OUTFIT

The appliances necessary to the proper care of small band saws, ranging from $\frac{1}{8}$ to 1, 2, or 3 inches wide, include an automatic filing machine, automatic setting machine, set of adjustable stretching wheels, or racks, for support of saw, a filing vise, a brazer, solder or spelter, etc.



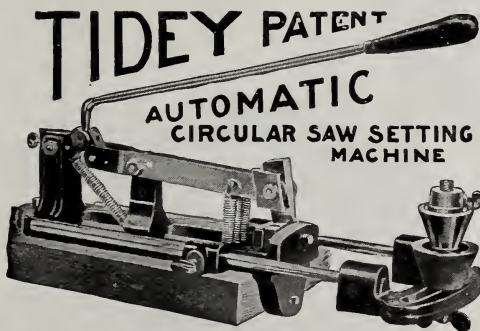
No. 87 A 20 Inch Steel Jawed Band Saw Filing Vise, \$12.

For saws $\frac{1}{8}$ to $2\frac{1}{2}$ inches wide, net 55 lbs, crated 70 lbs.. Clamps instantly and perfectly, the best yet. Price very low for the size, weight and efficiency of the tool.

NO. 106-B TRIP HAMMER CIRCULAR SAW SET.

For Saws 5 to 30 Inch Diameter.

Boxed f. o. b. Grand Rapids \$25.00. 35 pounds.



Cone A, centers saw; G. anvil; B, setting hammer. Operating lever extends upward at E; screw F regulates force of blow, i. e., determines height to which hammer is lifted. The three springs also regulate the force of blow; that is, machine can be operated with one, two or three springs. The farther the teeth are placed over anvil, and the harder the blow, the greater the degree of set given. The blows are always alike and a uniform set results. A boy with this machine can do absolutely correct work.

The largest saw shop in the world employs 28 of these machines. 2,000 sold.

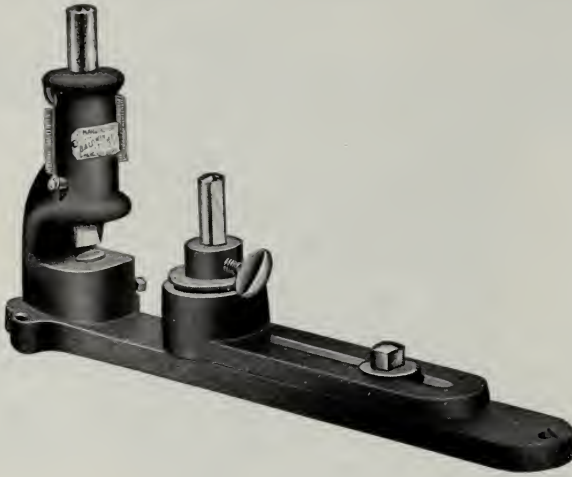
A FEW CUSTOMERS.

Western Electric Co., New York
Siegel & Cooper Co., New York
Votey Organ Co., New York
Bradley, Currier & Co., N. Y.
Baldwin Locomotive W'ks, Phil.
Henry Disston & Sons, Phila.
Brill Car Co., Philadelphia.
Sikes Chair Co., Philadelphia.

Rothbone, Hair & Co., Chicago.
Louis F. Nonast, Chicago.
J. C. Wintermeyer, Chicago.
Theodore Kundtz, Cleveland.
Cleveland Box Co., Cleveland.
American Box Co., Cleveland.
Standard Oil Co., Cleveland.
Widdicomb Furn. Co., G'd Rap.

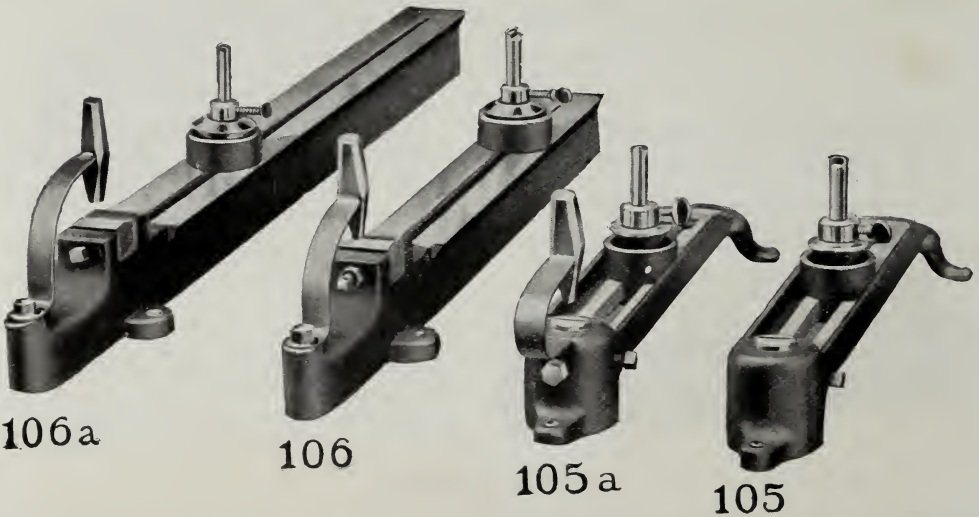
John Widdicomb, Co., G'd Rap.
G. P. Veneer Works, G'd Rap.
Mich. Chair Co., Grand Rapids.
Bissch Carpet Sweeper Co., G. R.
Phoenix Furn. Co., G'd Rapids.
New England, Furn. Co., G. R.
Fred Macey Co., Grand Rapids.

Over 2,000 machines sold. An indispensable machine for every concern that wants the best type of saw set manufactured.

B. T. & B. Circular Saw Sets.**No. 105-B Circular Saw Set, \$6.00.**

Capacity, saws 30 inch or less diameter. Crated weight, 20 lbs.

An excellent tool in large demand.



- No. 105. Circular Set for Saws up to 30 inch diameter..... Crated, 37 lbs\$ 6 00
 No. 105A. Circular Set with Spring Setting Hammer..... Crated, 41 lbs 7 50
 No. 106. Circular Set for Saws up to 48-inch diameter..... Crated, 46 lbs 10 00
 No. 106A. Circular Set for 72-inch Saws..... Crated, 60 lbs..... 13 00

Setting or Swaging Hammers, each $\frac{3}{4}$ -in., \$1.00; $\frac{7}{8}$ -in., \$1.25; 1-in., \$1.50. With each order give size of largest and smallest arbor holes and rubbing on paper showing outlines of teeth, to enable us to meet the special requirements.

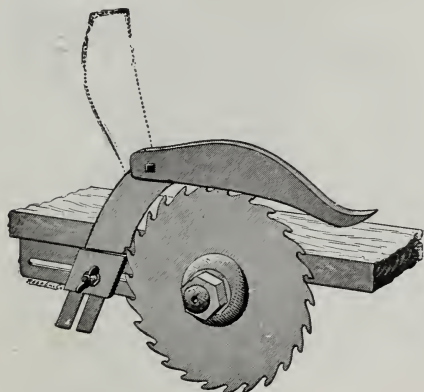
Safe Guards In Wood Working Plants.

As the proper safeguarding of the limbs, life and health of the employes in wood-working plants is a matter deserving the careful consideration of every employer, superintendent, foreman and millwright, their attention may be directed to the guarding of saws of every kind.

GUARDS FOR SAWS.

The numerous small saws of different kinds used in the average woodworking plant are probably a greater menace than are the larger saws in the mills. Any saw, regardless of size or speed, is dangerous, but there is a recklessness or carelessness on the part of many workmen, especially boys, that demands from operators the taking of every reasonable precaution to prevent accidents and injuries.

In England the Home Office now requires all circular saws to be guarded and the factory inspectors all over the country are very zealous in prosecuting those firms who try to evade the law. The factory inspection laws in many of the states are likewise becoming more strict and imperative. Prevention of danger is better than a later cure. Our B. T. & B. Saw Guard is serviceable, effective and inexpensive, and highly recommended to operators requiring such a device.



B. T. & B. Reliable Saw Guard.

REMEMBER that at a few dollars expense for each you can guard all of the saws in your factory, thus, preventing the loss of a finger or hand and the damage suits likely to follow such loss.

B. T. & B. RELIABLE SAW GUARD.

Easily Operated.

Saw Will Not Pinch.

Prevents Accident.

Perfectly Reliable.

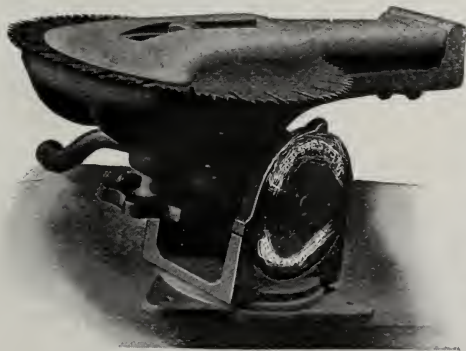
Simplicity Itself.

No Flybacks

Protect your saws with the only reliable Saw Guard. It saves time, is operated with one thumb screw, is adjustable all ways, is made of the best malleable iron and steel, is thoroughly reliable and will last forever. It is in daily use in the leading furniture factories in Grand Rapids, Mich., and many other cities.

R. H. or L. H. cut shows R. H.

	Weight
No. 118 Guard for saws 6 to 12 in. diam., \$3 50	3 lbs.
No. 119 Guard for saws 10 to 16 in. diam., 3 75	5 lbs.
No. 120 Guard for saws 12 to 24 in. diam., 4 00	6 lbs.



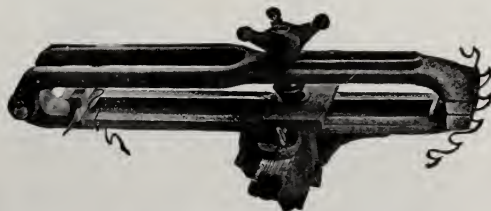
No. 108-B, Saw Vise, 35 lbs. \$6.50

Code Word, Grammar.

Adjustable to vertical, horizontal or an inclined position as useful for convenient work.

For dished saws, 5½ to 14½ inch.

For straight saws 7 to 14½ inch.

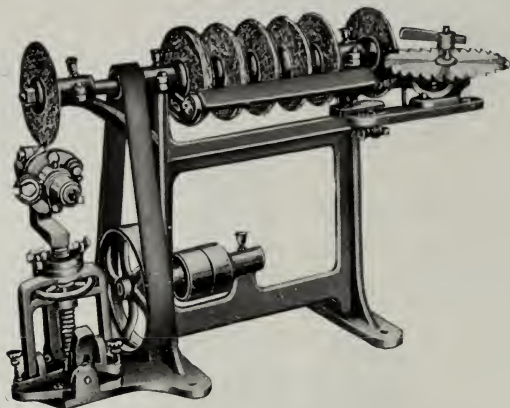


Circular Filing Vise and Jointer.
(is vertical when erected.)

No. 107. Vise for Saws up to 20-in. diameter, \$ 8.00

No. 108. Vise for Saws up to 50-in. diameter, \$10.00

No. 108-A For Saws up to 72-in. diameter, \$15.00



No. 229. Tool Grinder, Head Grinder, Saw Gummer.

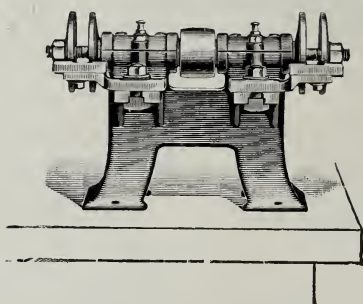
Code word, Combine.

This machine consists of a Combined Moulding Bit, Tool, Circular Saw, and Shimer Cutter Grinder. Just the thing for a tool room.

Tool Grinder with 5 wheels..\$40 00
Saw Gumming Attachments.. 10 00
Head Grinding Attachments.. 15 00
Machine with all attachments, 65 00
Head Grinder alone..... 35 00

Approx. Weight	Emery Wheels
250 lbs.	8-in. diameter
Driving Pulley	Speed
4x2 1/2	500

10 per cent advance in price for boxing and delivery at New York for export.



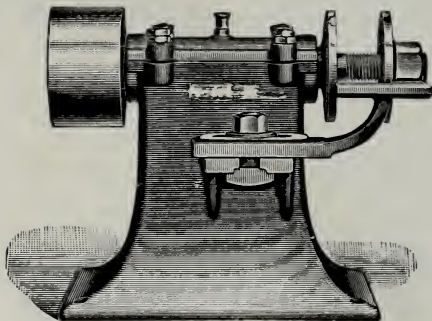
No. 96. Bench Grinder.

No. 96. For wheels 10x1 1/2 x 3/4 hole, \$13.50. Countershaft, \$13.50. Machine, 75 lbs. Countershaft, 100 lbs. Emery wheel extra. Pulley, 4 3/8 x 3 1/2 x 2 1/8. Slow speed, 1900.

No. 96A. For wheels 12x2x1 hole. \$25. Countershaft, \$13.50. Machine, 110 lbs. Countershaft, 100 lbs. Emery wheel extra. Pulleys 5x4 1/2 x 2 3/8. Slow speed, 1600.

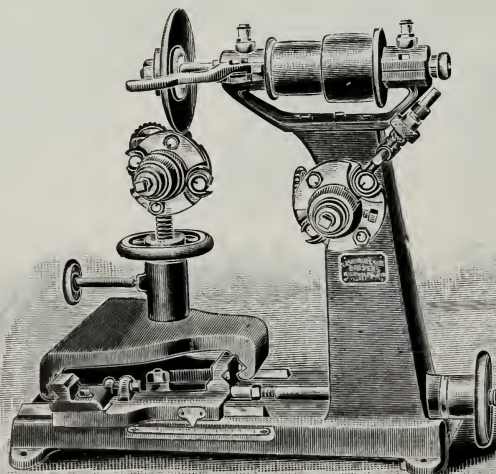
New Style Bench Saw Gummer

List price, \$7.50. Code word, Gosling.



SPECIFICATIONS

Weights about 40 pounds.
Diameter of Spindle between flanges, 1 inch.
Length of bearing, 6 inches.
Size of pulley, 4 1/2 x 2 3/4 inches.
Height from bench to center of spindle, 8 1/2 in.
Designed for wheels up to 12-in. diam., 1 1/2 in. thick.
Bench space occupied, 9 1/2 x 11 3/8 inches.



**A CUTTER HEAD GRINDER
With Tracking Attachment**

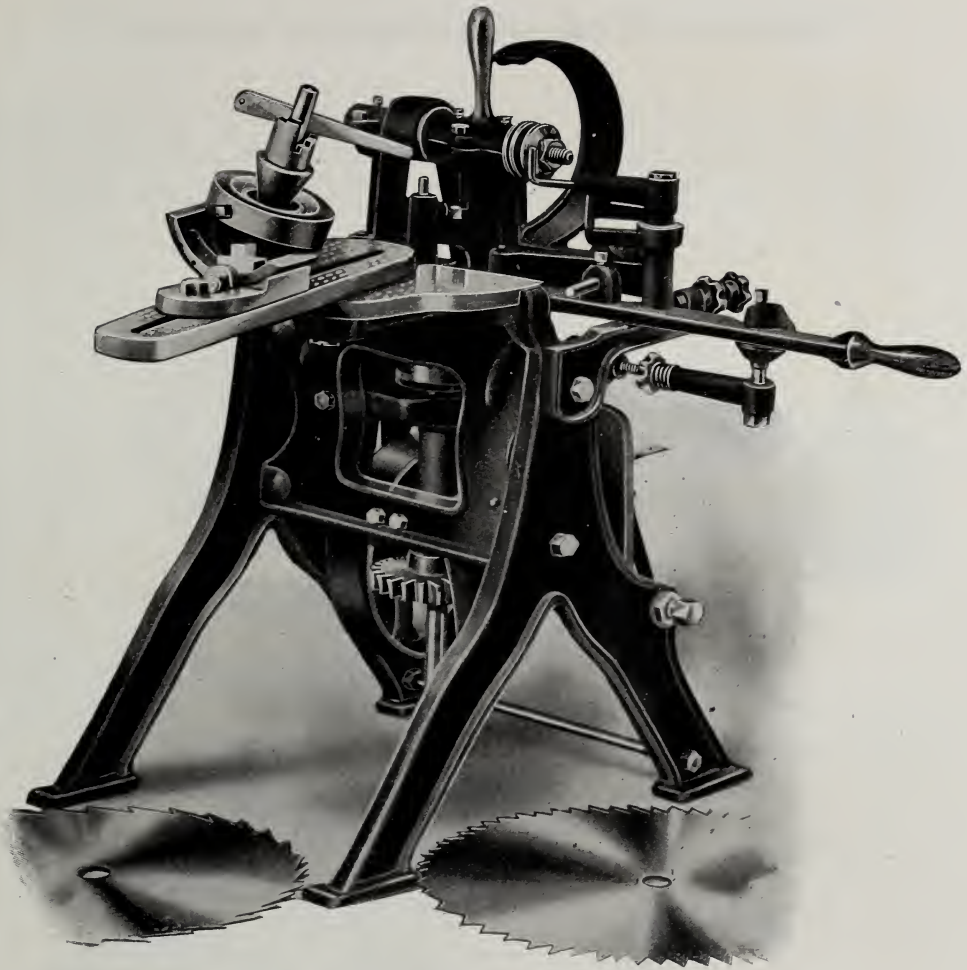
Weight of machine, about 300 pounds. Boxed for export, 350 pounds.

Price, complete machine with one emery wheel and countershaft (net).....\$80

Code Word, Shime.

With each machine, one emery wheel, countershaft and wrenches are included. T. & L. pulleys are 6 in. diameter, 3 inch face and should run 375. Size of belt to countershaft 2 3/4 in.; from countershaft to machine 2 1/2 in.

**INVESTIGATE OUR
KNIFE GRINDERS
AND BALANCES.**



OVER 3000 SOLD.

6 to 40 Inch Automatic Saw Sharpener for Rip or Crosscut and Concave Circular Saws.
A very Popular Machine for Sawmills and Woodworking Plants

No. 92.	Hand feed of tooth to wheel and of wheel to gullet.....	\$50 00	Code word	Buffer
No. 92.	Full automatic for rip saws.....	\$65 00	Code word	Buff
Weight, 200 lbs. Driving Pulley, 4-inch. Speed 900.				
10 per cent advance for boxing and delivery at New York for export.				

We furnish with each machine 3 emery wheels, belting, dresser and table, a very complete and satisfactory outfit for all factory saw requirements. All adjustments are extremely simple and readily made, even by unskilled men. There is nothing about the machine that is complicated or liable to get out of order.

Every user of saws, not already equipped, needs an automatic sharpener, and can better afford the machine than to do without it. It not only sharpens the teeth perfectly in less than one-third the time required for hand filing, but it keeps them gummed and uniform in size and shape. No files are needed except for very fine teeth.

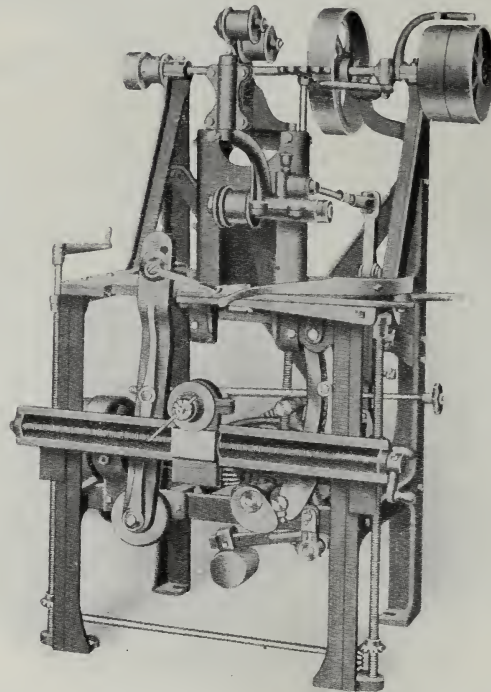
All work is done with precision. Screw stops and guides control the movement of the saw and wheel. Automatic for rips; operated by hand for cut-offs.

For rip saws, the movement of emery wheel in and out of gullet and the feeding around of teeth past wheel are strictly automatic. For crosscut circulars, the movement of the wheel and the feeding around of saw must be by hand.

When required for sharpening concave saws, customer must send us a sample saw by express, to enable us to adapt the machine to the special requirement. No extra charge for the special construction.

Automatic Rip and Crosscut Circular Sharpener

This machine is built in three sizes—No. 72 for saws up to 24-inch, and crosscuts up to 22-inch diameter; the No. 71 for rips up to 50-inch, and crosscuts up to 44-inch; the No. 71A for rips or crosscuts up to 72-inch. It will sharpen the teeth square or bevel edge, as desired. The No. 71 will sharpen either R. or L. H. shingle saws without removing the flanges.



(Cut and Full Description of Each Size on Request)


- No. 72. Automatic Rip and Cut-Off 6 to 24-inch Circular Saw Sharpener, \$75.
- No. 71. Automatic Rip and Cut-Off 8 to 50-inch Circular Saw Sharpener, \$150.
- No. 71A. Automatic Rip and Cut-Off Circular Saw Sharpener for 12 to 72-inch Saws,\$200.

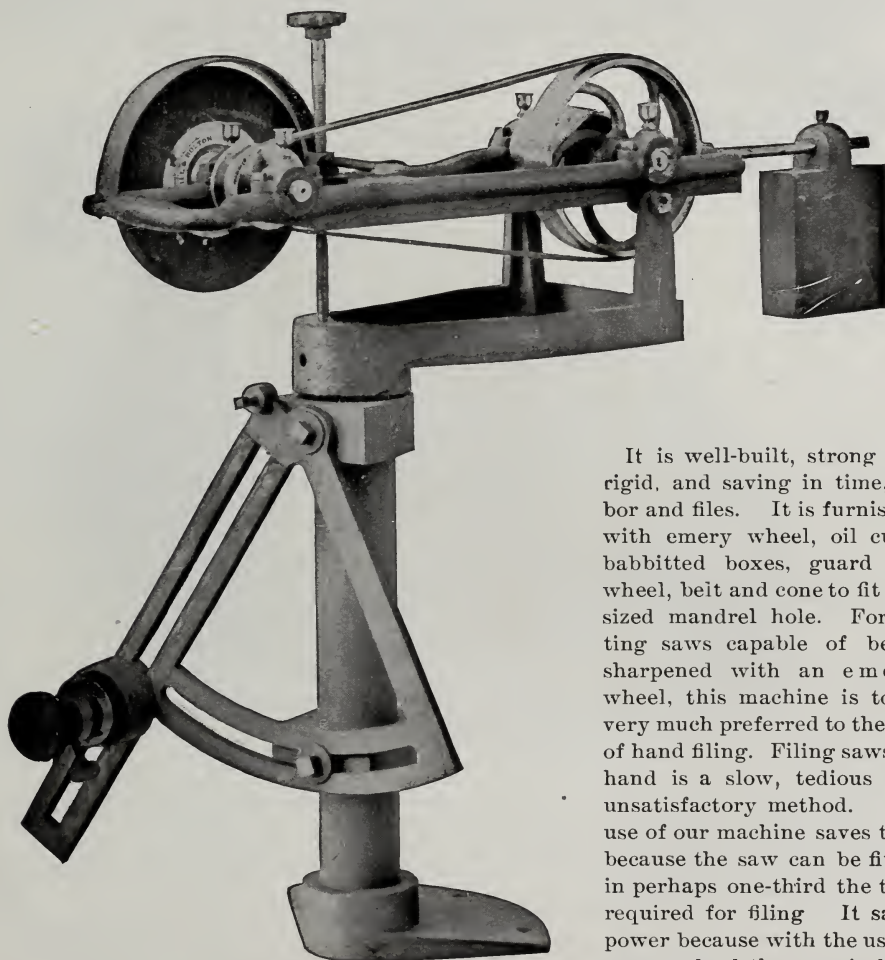
	Approx Weight	Driving Pulley	Speed	Floor Space	Code Word
No. 71	685 lbs.	3 x 2½ in.	475	8 sq. ft.; boxed, 36 cu. ft.	Unqualfy
No. 72	300 lbs.	5½ x 1½ in.	600	48 x 60 in	Unqualified
No. 71A	1400 lbs.	14 x 3 in	1854	8 sq. ft.; boxed, 14 cu. ft.	Unqualifying

Beltting and Wheel for No. 71, \$5.00; for No. 72, \$3.00; for No. 71A, \$6.00 extra.

Investigate our Double Cut Band Saw Filing Room Machinery.

Bolton No. 74 Hand Rip or Crosscut Gummer

 UR No. 74 Hand Gummer is admirably adapted to the fitting of all classes of saw-mill, planing mill and general woodworking rip and cut-off saws, ranging from 8 to 30-inch diameter. Its low price and convenience for variable use should recommend it to every one, even to those already equipped with a sharpener for their large saws. Our machine is simple, quickly adjusted for different sized saws, and positive in operation.



It is well-built, strong and rigid, and saving in time, labor and files. It is furnished with emery wheel, oil cups, babbitted boxes, guard for wheel, belt and cone to fit any sized mandrel hole. For fitting saws capable of being sharpened with an emery wheel, this machine is to be very much preferred to the use of hand filing. Filing saws by hand is a slow, tedious and unsatisfactory method. The use of our machine saves time because the saw can be fitted in perhaps one-third the time required for filing. It saves power because with the use of emery wheel the saw is kept

in round and balance, and each tooth performs its share of the work. It saves files because no file can approach an emery wheel in cutting qualities, and no well informed saw filer will prefer file work to emery wheel work, except where the shape of the saw teeth requires the use of files. It saves saws because very little grinding is necessary to sharpen perfectly.

Price, with belt and wheel. \$25.00			
Approx. Weight,	Driving Pulley.	Speed.	Floor Space.
200 lbs.	3-inch	700	24x36 in.; 36 in. high.
	1¼ in. Belt.		(Boxed 18x18 in.; 36-in. high.)

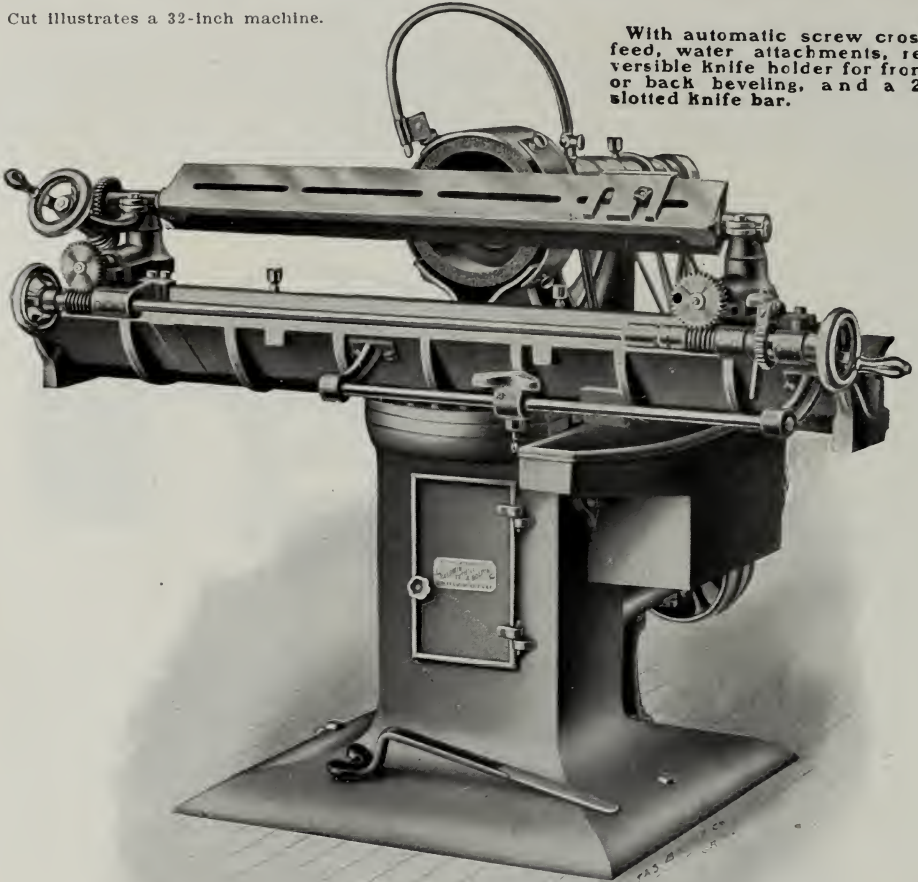
SOLD WITH UNQUALIFIED WARRANTY.

INVESTIGATE OUR BAND RESAW FILING ROOM MACHINERY.

Style D—B. T. B. Full Automatic Cup Wheel Knife Grinder.

Cut illustrates a 32-inch machine.

With automatic screw cross feed, water attachments, reversible knife holder for front or back beveling, and a 2-slotted knife bar.



Machines in the above style except with a 2 slot bar and adjustable post supports for ends of bed on 32 to 48 inch sizes, automatic in all respects, with water attachments, equipped with belting and cup wheel, knife holder as illustrated, with bolts for knives, will be furnished crated for shipment, f. o. b. cars Grand Rapids, at the following prices for sizes 26 to 48 inch capacity.

10 per cent advance for machines boxed f. o. b. cars New York for export.

No.	Price with automatic water attachments	Approximate Weight—lbs.	Price without automatic water attachments
150D - 26 inch Column Grinder, complete.....	\$102	675	\$ 92
151D - 32-inch Column Grinder, complete.....	114	750	104
152D - 28-inch Column Grinder, complete	126	825	116
153D - 44-inch Column Grinder, complete.....	138	875	128
154D - 48-inch Column Grinder, complete.....	150	900	140

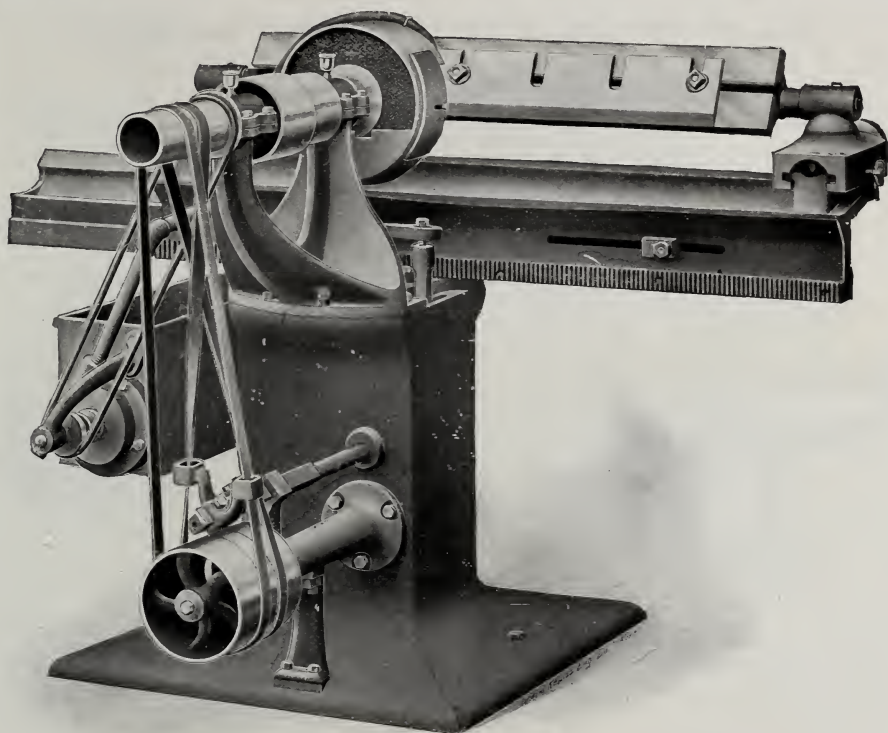
New wheels each, \$1.

New wheels each, \$4.

The V-shaped dog which trips the feed pawl may be set to feed fast or slow at each from 1400 to 1800 revolutions per minute, according to grade of wheel in use. Size of base on floor 26x26. Height to spindle 35 inches. Automatic cross-feed mechanism. Machine will afford flat bevel or concave or square edge grind.

The V-shaped dog which trips the feed pawl may be set to feed or slow at each round trip of slide, thus giving operator a wide range in degree of cross-feed. We recommend these machines as desirable in every way.

Send for our 32 Page Knife Grinder Catalogue. It's worth having.

Style A and B—B.T. & B. Automatic Spring Cross Feed Knife Grinder.

Cut shows 26 Inch, Style B, Grinder. Regularly furnished with a 2 slot knife bar.

Style A has Belting and Cup Wheel, no Water Attachments.

Style B has Belting, Cup Wheel and Automatic Water Attachments.

A very heavy, substantial and well-built machine, adapted to either flat or concave grinding. By slacking one bolt the slide can be set at different angles before the wheel. If set at a right angle to emery wheel spindle, the knife will traverse back and forth against the flat face and the knife be ground to a flat bevel. If it is set at any other angle the edge of wheel will do the grinding, and a concave grind result. These adjustments will be appreciated by anyone preferring a flat, stout edge for rough work, and a thin concave for fine work. The feed works are within the column. After the machine is started it requires little or no attention. The carriage has an even traverse back and forth and reversing is accomplished without noise or jar. The shafts are all of heavy steel with long babitted bearings. All bearings hand scraped and provided with oil cups. The cup wheel is 8x3½ inches and is provided with guard. Many of these machines are sold as dry grinders, but automatic water attachments will be furnished as illustrated by engraving, at a net advance of \$10.00. It is well to accompany order with a description of the knives to be ground. The tight and loose pulleys are 4½ inches diameter by 3½ inch face and should be run about 1400 to 1800 R. P. M. Size of base on floor, 26x26. Height to spindle, 35 inches. Measurement of 26-inch machine crated, about 42x41x40 inches. No charge for crating for rail shipments. One wheel and belting with each machine. New wheels \$4.00. Adjustable posts supports furnished for 32 to 48 inch sizes.

Boxing for export increases weights from 200 to 400 pounds.

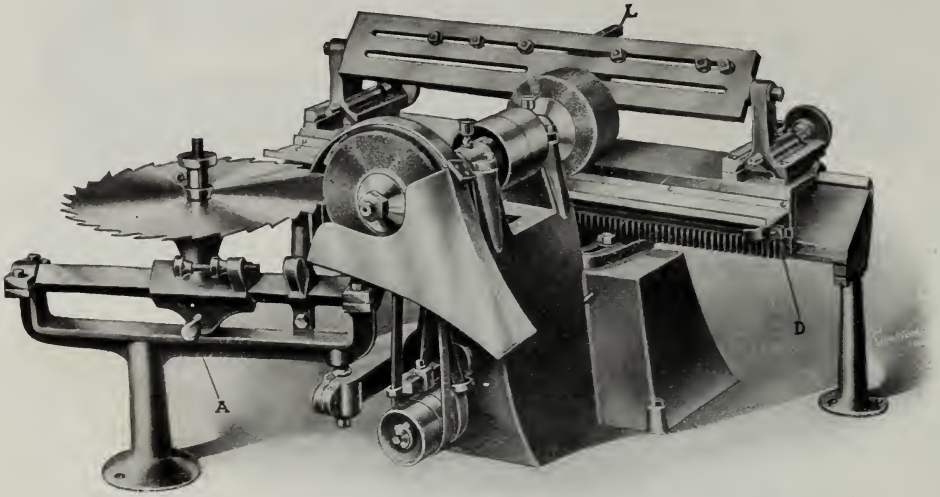
We recommend these machines to all customers as high-grade knife grinders at a very low price. Send for our 32 page Knife Grinder Catalog.

Fifteen per cent. advance for boxing and delivering at New York for export.

	Style A—Price	Weight	Style B—Price
No. 150A—26-inch Column Knife Grinder.....	75	675	\$ 85
No. 151A—32-inch Column Knife Grinder.....	85	750	95
No. 152A—38-inch Column Knife Grinder.....	95	825	105
No. 153A—44-inch Column Knife Grinder.....	105	850	115
No. 164A—48-inch Column Knife Grinder.....	115	900	125

INVESTIGATE OUR TOOL ROOM GRINDERS.

Style F—B.T. & B. Automatic Bench Cup Wheel Knife Grinder with 8 to 24-inch Circular Rip Saw Gummer Attachment



The Combination Knife Grinder and Saw Gummer illustrated is recommended to operators of saws and knives whose requirement is for an inexpensive machine. There are concerns having a real need for this machine, whose loss in time or bad work of poorly fitted saws and knives would pay for it one or more times each year. With each machine we furnish one 6x3-inch cup wheel, one 8x3 $\frac{3}{8}$ -inch saw gumming wheel, internal belting and belts for knives. The machine should be erected on a bench or table about 18 inches high. Posts supports for ends of bed are furnished with the 32 and 38-inch sizes. Dogs D at ends of carriage may be set to reverse to suit the length of knives being ground. Handle A enables the operator to feed the saw forward and backward in the process of gulleting, and the slide is provided with a stop to insure a uniform depth of gullet. Lever L is controlled by a spring feed device, for feeding the edge of knife against wheel in the process of grinding. The standard for supporting the edge of knife attachment can be set to afford any hook desired. The gumming wheel is provided with a guard and hood for protecting the machine from emery dust. No water attachments are furnished. The machine is a bargain at the price and may be ordered with confidence by those whose requirements do not justify the purchase of separate machines more expensive and desirable. New cup wheels, each \$3.

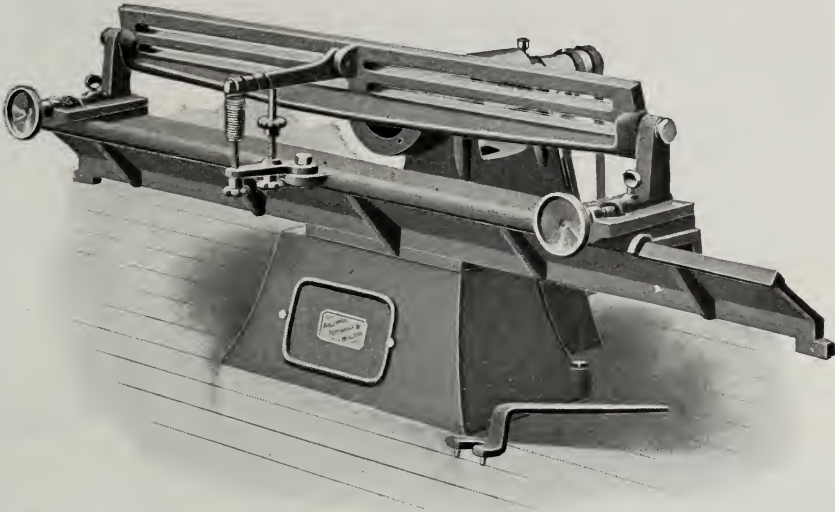
No. 147F—26-inch Knife Grinder (with Saw Gummer Attachment.)	Approx. Weight 420 lbs....	\$65 00
No. 148F—32-inch Knife Grinder (with Saw Gummer Attachment.)	Approx. Weight 450 lbs....	70 00
No. 149F—38-inch Knife Grinder (with Saw Gummer Attachment.)	Approx. Weight 485 lbs....	75 00
No Water Attachment.		

(Above Machines, Style E, without Saw Gummer Attachment, each \$15 less.)

Fifteen per cent advance for boxing and delivery on cars at New York for export. Drive pulley, 4 $\frac{1}{4}$ -inch diameter 2 $\frac{1}{4}$ -inch face, for 2-inch belt; speed about 1,500 to 1,800 R. P. M., according to grade of wheel.

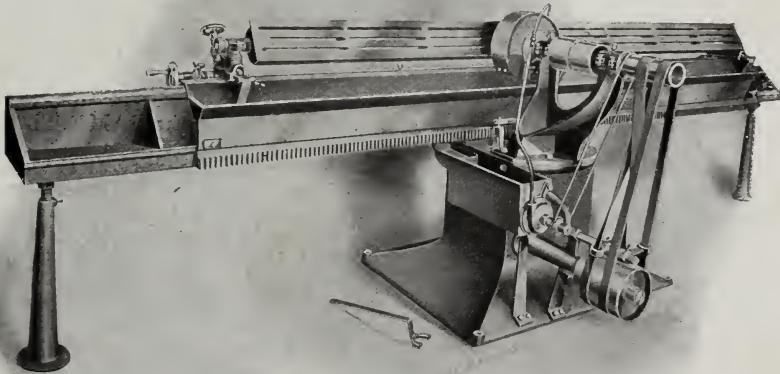
Send for our 32 Page Knife Grinder Catalogue. It's worth having.

Investigate our Automatic and Hand Circular Saw Sharpeners.

Style E — B. T. & B. Automtic Bench Cup Wheel Knife Grinder.**Style E Grinder like style F excepting Saw Gummer Attachment.**

No. 147—26-inch Knife Grinder, Approximate Weight 350 pounds, No Water Attachment	\$50 00
No. 149—32-inch Knife Grinder, Approximate Weight 425 pounds, No Water Attachment.....	55 00
No. 149—38-inch Knife Grinder, Approximate Weight 425 pounds, No Water Attachment	60 00

Fifteen percent advance for boxing and delivery at New York for export.

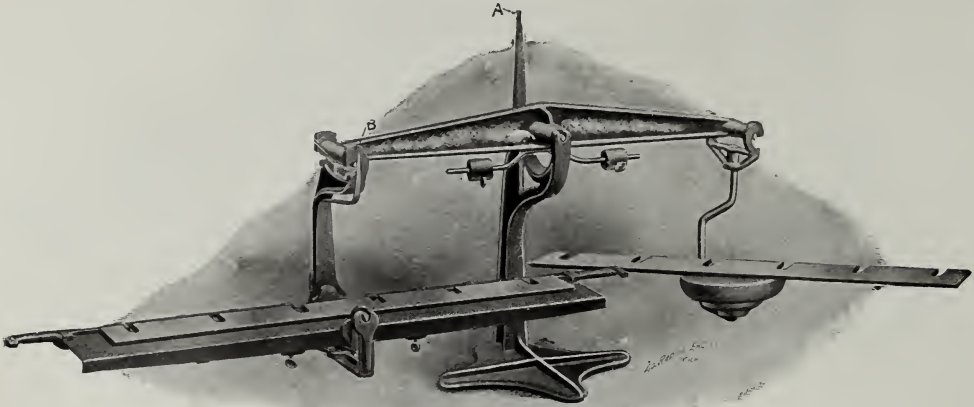
**STYLE D—B. T. & B. Full Automatic Shear Blade or Veneer Knife Grinder.**

Cut illustrates No. 163½D Extra Heavy Grinder, approximate weight crated for shipment, 3500 lbs., price equipped complete, f. o. b. Grand Rapids, \$370. T. & L. Pulleys, 6-in. diameter by 4- in. face, speed 1000 to 1200 R. P. M. Floor space for operating 5x20 feet. Capacity, 130 inch knives or less.

We build heavy grinders in sizes 54, 60, 76, 84, 90, 96, 108, 125, 130 and 150 inch capacity. Send for our 32 page Knife Grinder Catalog. It's worth having.

**The Most Perfect Knife Balance Manufactured. Will Balance Endways and Total weight at Same Time.
Indispensable for accurate work.**

It Saves Time, Labor, Repairs, Knives, Machines, Money.



No. 104, Munson Proportional Balance Scale, \$20. Capacity 41-inch Knives.

Boxed 12x12x37 inch.

Weight, 150 lbs boxed.

Code word, Balanced.

No. 104A \$25. Capacity 60-inch Knives.

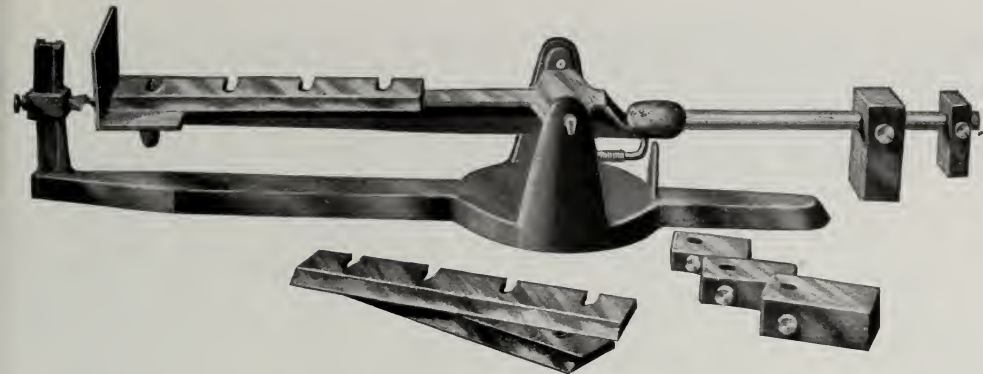
Slides "C" "C" will instantly and correctly center any knife from 41 inches down and slides move but 3 inches.

Pointer "A" will show if one knife is heavier than the other.

Pointer "B" will show if one end of the knife is heavier than the other and indicate which end. For a correct balance both of the errors must be corrected.

Will do its work in from one-third to one-tenth the time of any other balance.

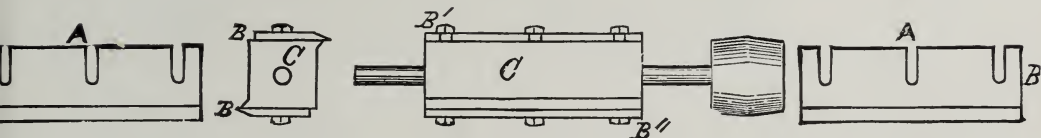
This machine will balance planer knives **ENDWAYS**, at the **SAME TIME** balancing the **TOTAL WEIGHT**, and thus speedily obtaining perfect balance; a thing rarely or never accomplished in any scales formerly in use. The necessity of having the ends in balance is appreciated by all good mechanics, and is essential for safety, good work, and the preservation of the machine. For years machines have been sped higher and higher, and demand more perfect balancing of knives. In using the **PROPORTIONAL BALANCE SCALE** draw the slides "C" "C" apart, then place the largest knife in the center of tilting platform, push the slides "C" "C" together, and it instantly centers the knife. Then tighten thumb screw on the back and they remain in the same position, and will need no further attention. The slides "C" "C" are inversely connected, and instantly and correctly center any knife from 41 inches down, and the slides do not move over three inches. The pointer "B" indicates the heavy end, how much variation there is. Correct this and then place this knife on the tilting platform. Pointer "A" shows how much heavier this knife is than the other, and pointer "B" shows where the additional weight is located. If "B" indicates one end heavier than the other, reduce that end until "B" is in the center, then reduce evenly until "A" indicates correctly. If there are three or four knives in set, proceed the same as with second knife. It is a very exceptional case when it will be necessary to go over the knife a second time. Place the knife on the platform as shown in the cut, and always place every knife in the same way. Knives should be of exact length, and work from left end; i. e. place every knife in the same place on the platform, and then on cylinder. Line them from same end. These machines are as sensitive as a druggists' scales, are simple, all parts are accurately balanced, all the bearings are of hardened steel, and other parts of machine are made of steel, malleable or cast iron, as the case demands.



Defiance Knife Balancing Machine.

No. 101 to balance knives up to 36-in. long, \$15
 Export Shipping eight, 65 pounds.
 Net Weight, 37 pounds.
 Cubic Measurement, 2 feet.
 Code Word, Balance.

No. 102 to balance knives up to 48-in. long, \$40
 Export Shipping Weight, 170 pounds.
 Net weight, 130 pounds.
 Cubic Measurement, 6 feet.
 Code word, Balancing.

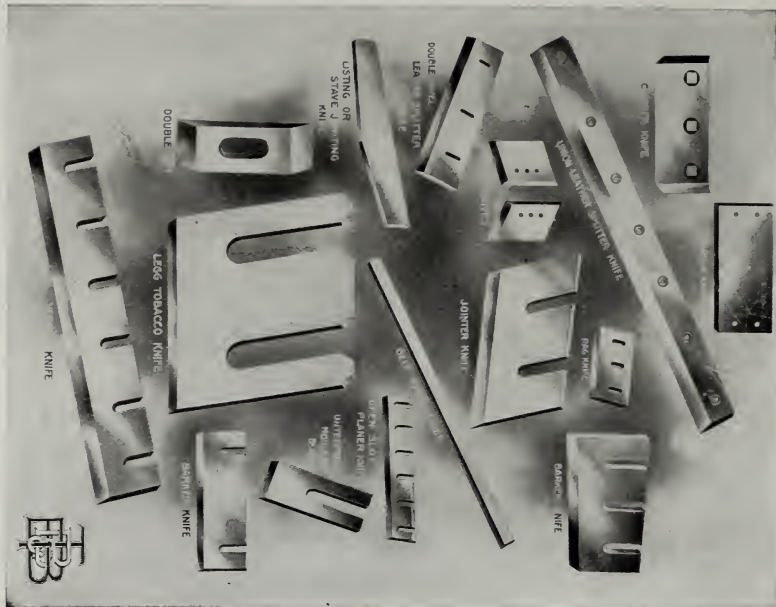


The above engraving represents one of the most perfect machines yet produced for perfectly balancing moulding knives, planer knives, revolving cutters of every shape, knife screws, etc.

This machine is too well known to the users of machine knives to require a lengthy description.

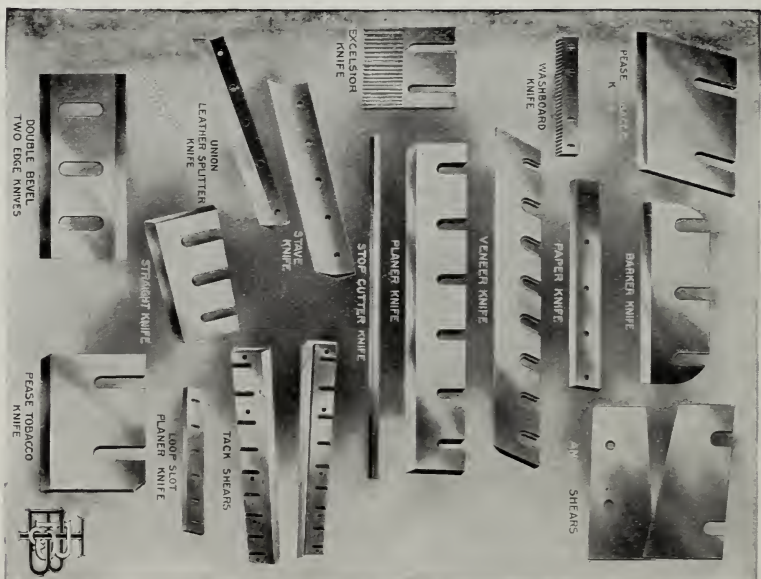
In describing its use, let AA, Fig. 1, represent two knives, which are to be fastened onto the cutterhead C. Let it be supposed the knives are of the same specific weight, but that there is an excess of weight at the opposite ends, BB; then, when revolving on the head they will cause a violent jarring or "throwing" by reason of the excess at B' and B". The knives could be reduced to the same specific weight by the aid of a common grocers' scales, but that would not attain the object; by the use of the Proportional Balancing Machine the position, as well as the amount of excess of weight, can be ascertained, so that in reducing the knives to the same specific weight they may be made to agree in their corresponding parts. The method hitherto used is by reducing pairs or sets of knives to the same dimensions and by aid of common scales to the same specific weight; but so great are the differences in the density of the parts of even the same knife, that a still running set of knives is but an accidental result.

In operating, let it be supposed that two or more knives are intended to be fastened onto one cutterhead, rotating, at a high velocity, and that it be conceded that they must not only be of the same specific weight, but must agree in their corresponding parts. Place each knife in succession on the platform of the Balancing Machine, with its face toward the end-board with a suitable weight at the opposite end of the beam; if by this test they all appear to be of the same specific weight, place them each in succession again, with their backs against the end-board; they may still appear to be of the same specific weight; place them each in succession flatwise on the platform, in as many different positions as of which they are susceptible, noting and reducing by an indefinite number of trials the edges which are found to be of excessive weight, until they all are reduced to the same weight in their corresponding parts. They will also then, of course, be of the same specific weight. The balance weights are made oblong, so that by putting the heavy end up, the entire mass, consisting of weight, beam and knife, may be poised near its center of gravity, and thereby oscillate more sensitively. If, however, the object to be balanced be very heavy, the weight must hang down, or the upper portion of the mass may preponderate. It will be seen that the operator can make the poise more or less delicate, according to the varied positions of the knives to be balanced.



PLANER KNIVES
SHINGLE KNIVES
JOINTER KNIVES
STAVE JOINTING KNIVES
VENEER KNIVES ..
MOULDING KNIVES

Order
KNIVES
of us for
ANY KIND
OF MACHINE



PAPER KNIVES
HOG KNIVES
BARKER KNIVES
DOCTOR BLADES
METAL SHEARS
BITS, Etc., Etc.



Directions for Ordering Knives

Send Templets.

In ordering knives place the knife face down on the paper, mark around to show the length of knife and size and position of slots, and state length, width and thickness, as shown in diagram; also state the number of knives in a set, if back bevel is needed, and the temper required, whether high, to grind only, medium, to file slowly, low, to file easily, and for what purpose the knives are to be used.

Order Knives of us for any kind of machine for wood working.

No. of Knives Wanted.....No. of Knives in Set.....
Length..... Width..... Thickness.....

Mark which of following tempers is desired:

Hard..... to Grind
To just file.....to file slowly.....to file easily.....
What kind of wood they are to work on.....

Remember—In sending specifications for knives the length is the distance between ends of the cutting edges; the width, distance from cutting edge to back. Price of irregular knives is determined by the greatest length and greatest width.

PRICE LIST OF PLANING AND BARKING MACHINE KNIVES.

Also Wood Chipper Knives, Flat Fur Cutting Bed Knives, and Ordinary Straight Knives of Same Finish (not otherwise provided for), $\frac{3}{8}$ of an inch thick or less.

PRICE PER INCH.	6¼ to 31 long	Over 31 to 40	Over 40 to 50	Over 50 to 60	Over 60 to 70	Over 70 to 80	Over 80 to 90	Over 90 to 100
4 in. wide or less.	18	21	24	28	32	39	46	53
Over 4 to 4½ in.	22							
" 4½ to 5 "	28							
" 5 to 5½ "	32							
" 5½ to 6 "	36							
" 6 to 6½ "	40							
" 6½ to 7 "	45							
" 7 to 7½ "	49							
" 7½ to 8 "	53							
" 8 to 8½ "	59							
" 8½ to 9 "	66							
" 9 to 9½ "	73							
" 9½ to 10 "	80							
" 10 to 10½ "	87							
" 10½ to 11 "	94							
" 11 to 11½ "	101							
" 11½ to 12 "	108							

Figure at actual measurement, viz.: $24\frac{1}{8}$, $50\frac{1}{8}$, etc. Knives wider or thicker in one part than another, figure by widest and thickest measurement. Measure by longest length, whether cutting edge or back. **All Knives** longer or wider than in this list (unless otherwise provided for) figure by **Special List**. Knives with Counter-bored Slots add 10 per cent. Advance for extra thickness all knives as follows:

Over $\frac{3}{8}$ to 7-16 thick.....10 Per Cent
Over 7-16 to $\frac{1}{2}$ thick.....15 Per cent
Over $\frac{1}{2}$ to $\frac{5}{8}$ thick.....20 Per Cent
Over $\frac{5}{8}$ to $\frac{3}{4}$ thick.....25 Per Cent
Over $\frac{3}{4}$ to $\frac{7}{8}$ thick.....30 Per Cent
Over $\frac{7}{8}$ to 1 thick.....35 Per Cent
Over 1 to $1\frac{1}{4}$ thick.....50 Per Cent
Over $1\frac{1}{4}$ to $1\frac{1}{2}$ thick.....75 Per Cent
Over $1\frac{1}{2}$ to 2 thick.....100 Per Cent

Solid Steel Planer Knives, etc., over 12 inches long, advance 25 per cent, 5-16-inch thick or less, and 50 per cent $\frac{3}{8}$ inch thick or more.

(List subject to change without notice.)

Straight Knives, $6\frac{1}{8}$ Inches Long or Less. ($\frac{3}{8}$ thick or less.)

2 inches long or less, 4 inches wide or less.....	\$0.75 each
Over 2 to 4 inches long, 4 inches wide or less.....	.93 each
Over 4 to $6\frac{1}{8}$ inches long, 4 inches wide or less.....	1.12 each

If over 4 inches wide, increase 1-6 for each inch or fractional part.

Add 50 per cent for knives plated all over one face.

Advance for extra thickness. Counterbored slots add 10 per cent.

All Flat Knives ($\frac{3}{8}$ thick or less) with **irregular edges** (not moulding knives), add 50 per cent to list of straight knives $\frac{1}{8}$ inch long or less (except in lots of 50 or more without slots, as provided in Jointer and Sectional Matcher Bit List), and to list of Planer Knives, if over $6\frac{1}{8}$ inches long. (This covers knives not otherwise provided for, with **Slightly** convex, concave, angular, or irregular edges that can be ground on ordinary grindstone.) Figure by widest part of knife.

Advance for extra thickness. Counterbored slots add 10 per cent.

Moulding Cutters. $\frac{3}{8}$ thick or less, with edge worked to pattern, 5 inches wide or less, 60 cents per inch; if over 5 inches wide, advance 1-6 for each inch or fractional part. Moulding Cutter will be charged for at a less price than 75 cents each.

Advance for extra thickness.

Moulding Cutter Blanks (not tempered), $\frac{3}{8}$ thick or less, 5 inches wide or less.

2 inches long or less.....	\$0.37½ each
Over 2 to 3 inches long.....	.54 each
Over 3 to 4 inches long.....	.75 each
Over 4 to 5 inches long.....	.90 each
Over 5 to 6 inches long.....	1.05 each

Advance 20 per cent over 5 inches wide.

Advance for extra thickness.

Plated stock in bars, with edges rased or not, 30 cents per lb. When faced, $37\frac{1}{2}$ cents per lb. Plated all over one face, add 25 per cent. For Back Lathe Knives, $37\frac{1}{2}$ cents per lb.

Beveled Edge Steel, in bars for making upright Moulder or Shaper Bits, $7\frac{1}{2}$ cents per inch, up to $1\frac{1}{2}$ inches wide; $\frac{1}{2}$ cent extra each $\frac{1}{2}$ inch or fractional part of $\frac{1}{2}$ over $1\frac{1}{2}$ wide.

If plated, advance 25 per cent.

Cope Cutters, 90 cents each.

Jointer, Sectional Matcher Bits, Sash Bits, and other Small Bits Without Slots.

$\frac{3}{8}$ thick or less, 5 inches wide or less.

1 inch long or less.....	\$0.45 each
Over 1 inch long, to 2 inches long.....	.60 each
Over 2 inches long, to $2\frac{1}{2}$ inches long.....	.75 each

Irregular edge cutters (without slots), in these sizes (except Sectional Matcher Bits), in lots of 50 or more, advance 50 per cent.

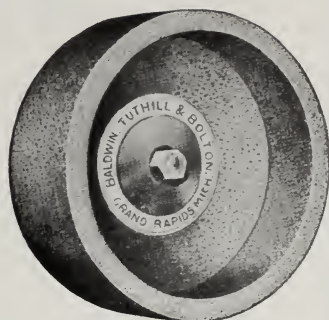
Advance for extra thickness.

If over 5 inches wide increase 1-6 for each inch or fractional part.

Solid Milled Matcher Bits.

2 inches long or less.....	\$1.50 each
Over 2 inches long.....	2.25 each

(List subject to change without notice.)



Cup Wheels for Knife Grinding, Straight and Concaved Saw Gummers.

We carry in stock a large assortment of wheels of standard makes, ordered expressly for our different grinding machines, with which to equip each machine with one suitable wheel, before shipment, and to supply those who may wish to place subsequent orders for wheels with us in order to secure required sizes and grades for quick shipments.

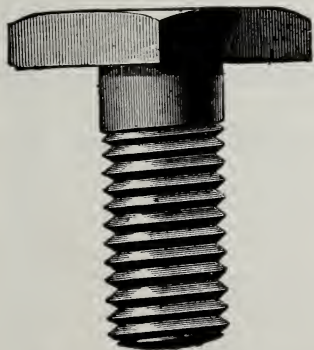
Miscellaneous Wheels.

We also carry in stock all sizes of emery suitable for our different band, gang and circular sharpeners, lap grinders, band wheel and bench grinders.

Special sizes or shapes of wheels for any purpose, if not in stock, will be furnished at earliest possible moment after receipt of order.

We furnish wheels that are fast cutting and durable, porous and open, free from dust or odor, do not heat the work, work wet or dry, and are very free from tendency to glaze or case harden.

Quality considered, our prices are exceptionally low; but a specially low price on emery wheels should be the least important consideration to the customer, for one first-class wheel is better than several poor ones, and cheaper in the end.



PLANER HEAD BOLTS

Price per 100 without Nuts

Diameter of Head....	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$
Length of Head..	5-16	5-16	$\frac{3}{4}$	$\frac{3}{4}$	7-16
Diameter of Screw ..	$\frac{1}{2}$	9-16	$\frac{5}{8}$	11-16	$\frac{3}{4}$
Length un- der Head to extreme point.	1	\$10 00	\$	\$	\$
	$1\frac{1}{4}$	10 50	12 00	13 30	13 30
	$1\frac{1}{2}$	10 50	12 25	14 00	14 00
	$1\frac{3}{4}$		12 45	14 80	14 80
	2		13 75	15 70	15 70

All 12 threads to inch unless otherwise specified.

PLANER HEAD BOLT NUTS

Diameter of Screw	$\frac{1}{2}$	9-16	$\frac{5}{8}$	11-16	$\frac{3}{4}$
Short Diameter of Nuts...	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	1 7-16
Thickness of Nuts ...	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$
Price per 100	\$10 00	\$12 00	\$15 00	\$16 00	\$18 00

All 12 threads to inch unless otherwise specified.

SAWS

CIRCULAR

BAND

GANG

DRAG

CROSS-CUT

All the saws you use we manufacture and do so to your satisfaction. Into every saw that leaves our shop the best of 40 years successful saw experience is hammered.



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SHINGLE

JOINTER

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The steel we use is half the story of your knives.—The skill and knowledge we use in their manufacture is the other half. Champion knives have a rating and live to that reputation.



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We carry in stock the supplies the mill man uses and all of your requirements can be supplied by the

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Ever Use Corundum Wheels?

For SAW GUMMING, KNIFE GRINDING and all work of this character The most satisfactory and economical grinding device on the market. CORUNDUM is the only constituent of Emery that has any abrasive value. Average emery contains about 30 per cent. corundum.

ATKINS' AAA CORUNDUM WHEELS

are therefore pure. Every turn of the wheel counts 100 per cent. Like our

ATKINS High Grade Silver Steel SAWS

They are the "Finest on Earth." Send for prices and discounts. When you do---ask about the Goodyear Load Binder---like all our goods, they are as perfect as fifty years experience can make them.

Have you our 1906 Catalogue? If not—let us know.
Does our representative call? If not—drop us a line.

E. C. ATKINS & CO., Inc.,

Largest Manufacturers of Saws, Saw Tools and Mill Specialties.

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BRANCH HOUSES:
Atlanta, Chicago, Memphis, Minneapolis,
New Orleans, New York City, Portland,
San Francisco, Seattle and Toronto, Canada.



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SAWS WARRANTED

OHLEN SAW MANUFACTURING CO. COLUMBUS, OHIO.

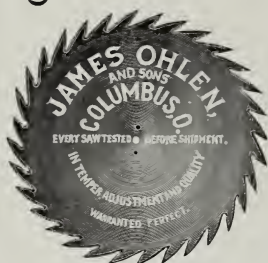
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Leaders for 1906

We make everything in the way of a Saw

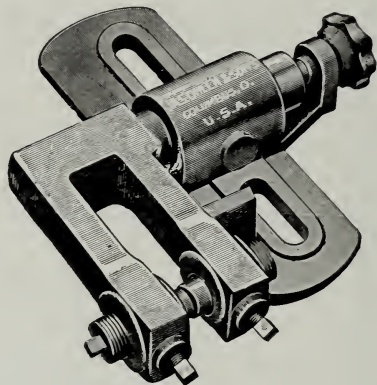
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Ohlen's Guide
No. 1

PRICE \$6.50



HUTHER BROTHERS' PATENT GROOVER or DADO HEAD



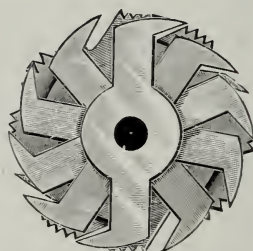
Can be used on any
Circular Saw Mandrel

For cutting any width groove $\frac{1}{8}$ in. to 2 inches or over.

It consists of two outside saws, each being a groover in itself and as many inside cutters as required.

The inside cutters are made 1-16, $\frac{1}{8}$ and $\frac{1}{4}$ in. thick so that any width groove measurable in sixteenths may be cut.

The outside cutters are made $\frac{1}{8}$ in. thick.



Will cut a perfect groove with or across the grain

This is the only Dado Head on the market that gives entire satisfaction on all classes of work. No screw adjustment. For different width grooves, simply remove or add inside cutters. Sold by builders and dealers of woodwork machinery in all parts of the United States.

Will send on approval, in competition with any other make on the market; if not the best return at our expense.

HUTHER BROS., 227-231 Mill Str., ROCHESTER, N.

Manufacturers of Circular Saws, Patent Lock Corner Boxes, Etc.

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EVERY proprietor of a wood working institution is falling behind unless he is keeping posted on all the new tools and appliances which pertain to the mechanical part of his plant. And in addition to that it is to his own interest to have his superintendent, foreman and his best men kept informed. They can save him many a dollar if they know about the new tools which can be easily installed and which cut down the production cost a large percentage.

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Read what Uncle Sam says of Corundum:

United States Government Report (Bulletin 180, Department of the Interior), extract from which we herewith give, concisely indicates relative values.

"Emery is a mechanical admixture of corundum and magnetite or hematite. It is, of course, the presence of corundum in the emery that gives to it its abrasive qualities and makes it of commercial value, and the abrasive efficiency of emeries varies with the percentage of corundum they contain."

NATIONAL CORUNDUM

WHEELS

*Not taken from "stock,"
but made for your needs.*

No single abrasive or combination is best for all kinds of grinding, but Corundum is not even approached for grinding steel knives, tools or saws.

We are the only Manufacturers owning and operating Corundum mines and can therefore give you PURE CORUNDUM wheels at prices others charge for adulterations.

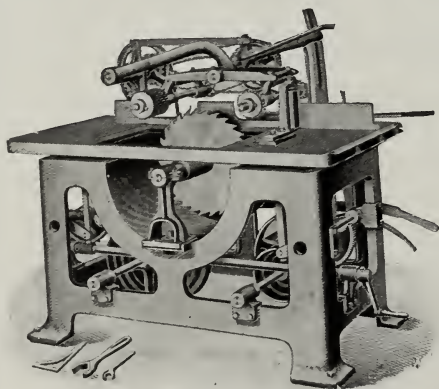
Wheels of all sizes and shapes made of proper abrasives or combinations for the duties they are to perform.

An attractive proposition for new customers. Drop us a line.

The NATIONAL CORUNDUM WHEEL CO.

Main St. Station - Erie R. R. Buffalo, N. Y.

The Hoosier Self-feed Rip-Saw



**A Machine that's different
because it's better.**

NOTE SOME OF THE PATENTED IMPROVEMENTS.

Square-raising table, self-looking at any point without clamps, bolts or screws. Patent feed with two shafts, in-feeding with thin star wheels and out-feeding with corrugated rolls, 5½ inches long; feeds either 35, 75, 100 or 150 feet a minute, at will of operator, with saw running at 3,000 revolutions. Machine will rip from ¼ to 6 inches thick, and any width to 17 inches. Can be used as single rip-saw or side edger, as a gang rip-saw, or for ripping bevel siding. Has every possible adjustment for rapid handling of dimension stock, or for sawing barrel hoops, or crating.

PRICE, \$175.00.

We also build the machine with a movable saw at a slightly higher price.

SEND FOR FULL DESCRIPTION.

The Sinker-Davis Co., Indianapolis, Ind.
MANUFACTURERS OF SAW MILL MACHINERY.

The Superior Corundum Wheels

FAST AND COOL CUTTING

Made Expressly For

SAW GUMMING

AND

All Wood Working Tools



HOO-HOO NO. 12605



THE SUPERIOR

DURABLE AND UNIFORM

Cuts fast — Cuts cool — Hold their shape.
Don't burn — Don't fill up — Don't crumble,
Don't break. Have combined the greatest
Efficiency — Uniformity — Durability and
Safety.

OUR SPECIALTY

is wheels for Saw Gumming and Wood Working Tools. They are the results of years of study (and experiments) and are made from the best abrasive by skilled workmen with tools and facilities specially adapted for this class of work. **THEY ARE MAKING A SAVING FOR MANY MANUFACTURERS,** why not for you? A trial will decide—**SEE GUARANTEE.**

THE "SUPERIOR" KNIFE GRINDER WHEEL

(STRAIGHT OR CUP)

For any Wet or Dry--Hand or Automatic Knife Grinder for grinding

PLAINER, VENEER,
PAPER KNIVES, ETC.

Cut cool and **DO NOT DRAW THE TEMPER.** HUNDREDS TESTIFY TO THEIR SUPERIORITY. A trial invariably means a customer



All "Superior" wheels are **guaranteed** to give perfect satisfaction or to be returned at our expense. All we ask is a trial as we know future orders will follow. Send for circular "C"

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SUPERIOR CORUNDUM WHEEL COMPANY

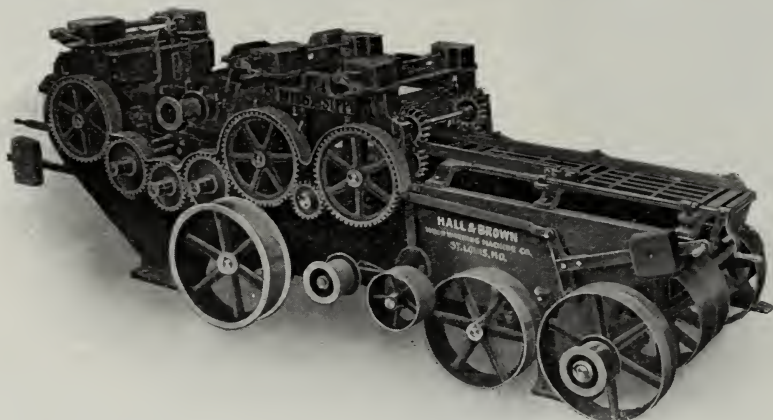
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Planers and Matchers

Over 1000 in Use 125 Sold in 1905

BUILT IN ALL SIZES



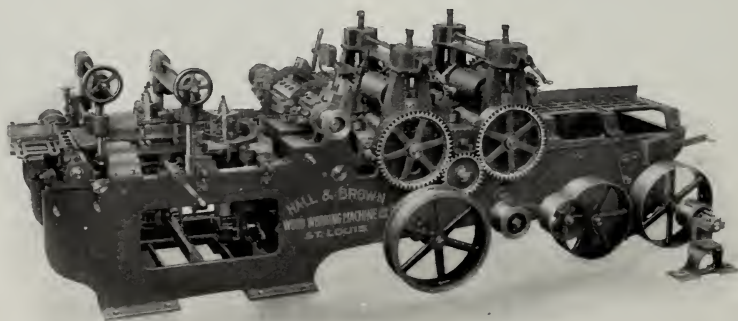
Twentieth Century Series—No. 1 Mississippi Planer and Matcher

Built in Five Sizes, 7, 9, 11, 13 and 15 inches wide. 3 inches thick.

HALL & BROWN Wood Working Machine Co.

ST. LOUIS, MO.

When in the Market for Latest Improved Modern Wood Working Machinery, send for our New No. 10 400-page Descriptive Catalogue and Prices



Twentieth Century Series & Inside Moulder

Built in Two Sizes, 13 and 15 inches wide, 6 inches thick.

No. 286 B. T. & B. New Design Rip Saw Table



USED FOR ALL KINDS OF RIPPING, FURNISHED WITH CUT-OFF ATTACHMENT ON ORDER.

No. 286. Saw Table with top 36 inches wide by 54 inches long, Heavy Iron Frame, Weight 600 lbs.\$45.00

Extra for cut-off gage.....	\$2.50
Extra for 16-inch rip saw	2.75
Extra for 16-inch cross-cut saw	2.75
Extra for counter shaft	15.00

Specify in order how you want the machine equipped.

The frame is of heavy, well ribbed cast iron. The top is made of narrow, glued-up hardwood strips, thoroughly seasoned and the cross pieces fastened below are of cast iron, well ribbed, to prevent any working of the table.

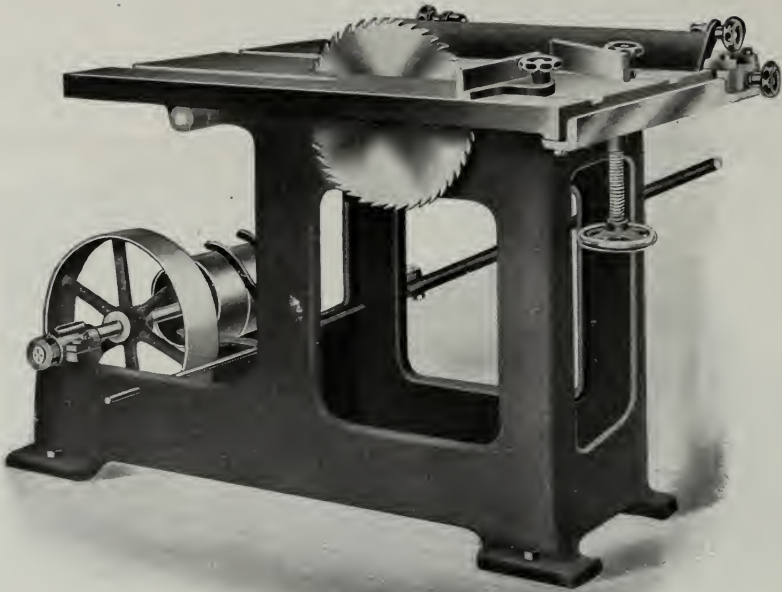
The saw arbor is of $1\frac{3}{8}$ -inch steel turned down to $1\frac{1}{8}$ -inch for saw, and grooved to prevent end motion. The arbor and slot will accommodate a saw up to 18 inches diameter.

The table is constructed with an opening around the saw into which a wooden detachable throat is fitted, which when taken out gives ample room for changing saws or using dado or grooving head.

The table is provided with one slot for cross-cut gauge. The ripping gauge moves easily across the saw and can be quickly set and adjusted.

The machine is adapted for use as a rip, cross-cut, grooving or dado machine, and is desirable for furniture factories, planing mills, pattern makers, craters or anyone needing an efficient sawing machine.

Tight and loose pulleys on countershaft are 8 inch diameter by $5\frac{1}{2}$ inch face. Speed, 800 revolutions per minute. Driving pulley is $14\frac{1}{2}$ inch diameter by $5\frac{1}{4}$ inch face. Arbor pulley is 5 inch diameter by $5\frac{1}{4}$ inch face.



No. 5 IRON FRAME COMBINATION SAW TABLE, \$55.00

Weight 700 lbs. Code Word, Combine. No Saw Furnished.

This machine is extremely simple in design, convenient in operation and suitable for those desiring a reliable piece of apparatus at a low cost.

The Frame is constructed to secure the greatest strength, being cast in one solid piece.

The Countershaft is attached directly to the frame and the belt shifter is also attached to the frame convenient to the operator. The machine is consequently quite compact and requires a minimum amount of floor space.

The Saw Arbor is of fine grade steel and is $1\frac{1}{4}$ inches in bearings turned down to 1 inch where the saw goes on and grooved to prevent end motion. The arbor pulley is between the bearings which are cast extra long and lined with the very best grade of Rabbitt metal. The arbor and slot will carry any size saw up to 14 inches.

The Table is all iron, cast in one piece and heavily ribbed, and is 38 inches long and 30 inches wide, planed perfectly true, and is adjustable up and down. The table is constructed with an opening around the saw into which a wooden detachable throat piece is accurately fitted, which when taken out gives ample room for changing saws or using dado or grooving head. The table is equipped with two adjustable cut-off gauges and one tilting rip saw gauge and is provided with two paralleled ways or slots for the reception of the cross-cut gauges one on either side of the saw. These ways are carefully and accurately planed in the table. The cut-off gauges can be set any angle for angle or miter sawing. The ripping gauge is of our own special design, moves easily across the table and can be adjusted easily and quickly.

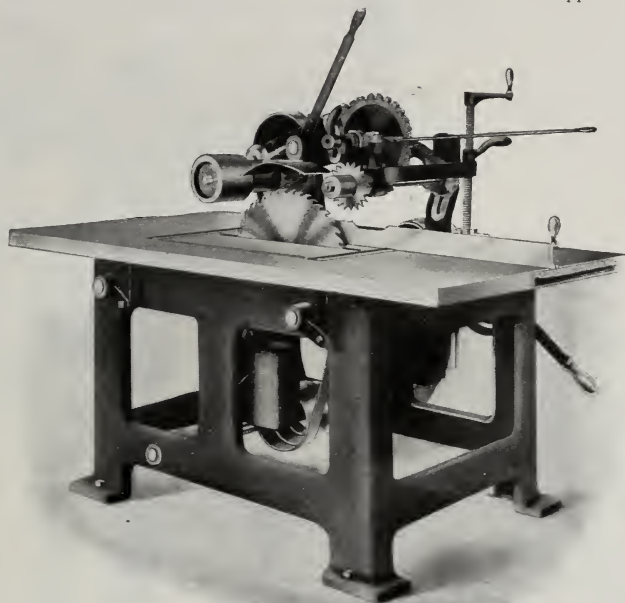
The Machine is adapted for use as a rip, cross-cut, grooving, or dado machine and is a fine tool for furniture factories, planing mills, pattern makers and anyone needing a good working saw. Tight and loose pulleys on countershaft are 8 inches in diameter and 4-inch face. The driving pulley is 16 inches in diameter and 4-inch face. Countershaft speed, 550 revolutions per minute.

No. 6 Self Feed Rip Saw, No Countershaft.....\$150.00
 No. 6 Self Feed Rip Saw, With Countershaft..... 165.00

Code word
 Selfrip
 Selfripper

The Table is all iron, heavily ribbed and is 37 inches wide and 68 inches long with an opening around the saw, into which an iron detachable plate or throat piece is accurately fitted, which is taken out when saws are to be changed; thus avoiding the lifting up of the table. This will also allow several saws to be used on the arbor at the same time, if desired, for ripping small steps, Friction rollers are placed in table before and after saw.

A Quick Lever Table Raising Attachment is applied to saw frame. It counter balances the table top on supports from two shafts with heavy vertical guides and by a single lever the table is instantly raised or lowered on a level or horizontally. This is a valuable feature, where various thicknesses



are cut, because the table can be instantly adjusted to give the saw the proper height and thus secure easier ripping and also save wear or heating of the saws.

Weight With Countershaft 2200 Pounds. No Saw Furnished.

The Frame is cast in one solid piece and is wide and very heavy, with extra long, self-oiling boxes for the saw arbor, and a strong double brace to the bearing outside the pulley. All boxes are lined with the very best grade of genuine Babbitt metal.

The Feed Works are of the most powerful and yet simple design, with no spur or bevel gears to wear quickly. The heavy link chain on the sprocket wheel is very durable, and if worn, is replaced without delay at a few cents cost. The feeding-in spindle has a set of collars so as to take extra spurs for gang ripping, also a fine cross adjustment to accurately bring the feed spur into the line of the saw kerf. Over the saw there is a spring steel guard which, with the front and rear feeds, gives perfect protection to the operator. The entire feed works adjust automatically to the varying thickness of stock being cut by the operator. The feed can be stopped or started, the feed works raised or lowered and the table raised or lowered by the operator without leaving his position at the front of the machine.

The Out-Feeding Device is attached on all machines, and regularly carries a Driven Smooth Roller, but corrugated or sectional rollers can be supplied on special order at cost. This out-feed adds to the power of feed, carries all pieces beyond the saws, and as a safety device has saved hundreds from injury or from damage costs. To add to the many safety features we have a Release Clutch, which stops the feed mechanism instantly. The two feeds are strongly driven and cone pulleys on the lower countershaft give any desired rate of feed. If the machine is needed for a plain saw bench at any time the entire feed works, which are pivoted on a swivel joint, may be swung upward and to one side, leaving the table clear. If desired the feed works may be removed entirely from table by simply loosening one screw.

The Saw Gauge is moved, locked and released by one lever. It has a pointer following a bronze ruler, which is so placed as to have figures clear and free from dust. The fence or guide is accurately adjustable so as to line with the saw or relieve it when necessary.

This Machine will take 18 or 20 inch saw and rip 3 or 4 inches regularly, or, if required, even 6 inches thick, and 16 or 17 inches wide. Saw arbor collars can be supplied up to a set 3 or 4 inches long. The saw arbor is of fine grade steel; it is 1¾ inches in bearing and 1¼ inches where the saws are placed. The saw arbor bearings are extra long and self-oiling. The pulley on saw arbor is 8 inches in diameter and 7½-inch face. The feed works are very powerful, consisting of three changes of feed, from 85 to 200 feet per minute. Saw arbor speed, 3100 revolutions for 14-inch saw, or 2800 revolutions for 18-inch saw. We do not furnish any saw with the machine, neither do we furnish any countershaft, unless ordered. The driving pulley on countershaft is 24 inches in diameter and 7-inch face. The tight and loose pulleys are 10x8 inches.



No. 7 IMPROVED SWING CUT-OFF SAW \$40.00

Weight, 400 lbs., Code Word, Cut-off

This cut shows our improved form of Swing Saw, which is unequalled for combined strength, simplicity and accurate work.

The Frame is cast in one piece, cored, and designed to secure the utmost rigidity and exactness and alignment.

The Adjustable Counterbalance may be applied to either side of the frame. When the frame is brought forward this counterbalance carries it back into position after the cut is made.

The Guard provided will accommodate saws up to 24 inches in diameter and is provided with a handle placed in a convenient position for pulling the saw forward.

The Saw Arbor is of fine grade steel turned to $1\frac{1}{8}$ inch where saw goes on, and 1 7-16 inch in bearings, and will carry any size saw up to 24 inches: is grooved to prevent end motion and runs in extra long boxes, which are lined with the very best grade of genuine "Babbit" metal.

We do not furnish saw with machine.

Length of arm, 6 feet, tight and loose pulleys, 8 inch by 5 inch. Drive pulley, 16 inch by 5 inch. Revolutions of countershaft, 450.

No. 311C Iron Frame Swinging Cut-Off Saw.



Price, with 16" Saw,.....	\$42
With 20" Saw,.....	\$45
With 24" Saw,.....	\$50

Approximate Weight 350 pounds.

The frame of the Swinging Cut-Off Saw shown consists of wrought iron pipes, securely held together and braced by cast iron braces.

The standard distance from ceiling to center of saw is 8 feet, which length is suitable for an 11-foot ceiling, but we make them longer or shorter, as ordered. We furnish special hangers when desired for attaching the machine to upright posts, instead of to ceiling.

The adjustable balance weight shown on cut is a great improvement. It allows the machine to be worked very rapidly, besides making the work much lighter.

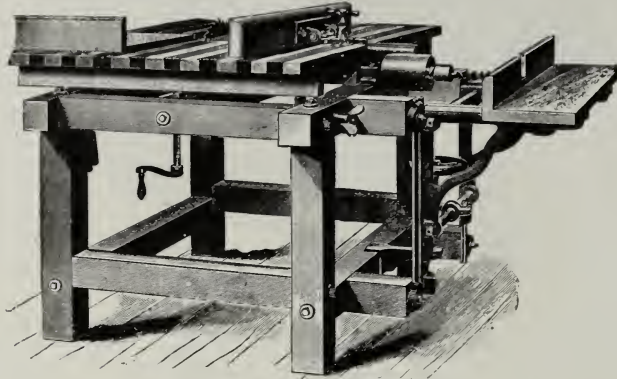
The mandrel is of steel, and the bearings are all lined with the best Babbitt metal.

A guard is placed over the saw, either for a 16, 20, or 24-inch saw as ordered.

We furnish the machine, as shown in cut with hangers, pulleys, and one 16 inch saw complete.

The loose and tight pulleys are 8x4½ inches, and should make about 625 revolutions per minute.

No. 317S Combined Rip and Crosscut Saw and Boring Machine.



Rip Saw.....	\$55 00	with Countershaft	} without saw blade.
Rip and Cross Cut Saw.....	65 00	with Countershaft	
Rip and Cross Cut and Boring....	85 00	with Countershaft	

The above cut represents our Wood Frame Saw Table, which is made in three styles, viz., as a Rip Saw only, as a Rip and Cross-cut Saw and a Combined Rip and Cross-cut Saw with Boring Attachment.

The Frame is made of well-seasoned 4x4 inch maple and is doweled and strongly bolted together.

The Table is of birch, glued up of narrow strips and is 1½ inch thick, 3 feet wide and 4 feet 6 inches long. It is hinged to the frame on one end, and has a raising screw for raising and lowering same to accommodate the stock to be sawed.

The Arbor is 1 11-16 inch diameter in the Bearings and 1 inch on the Saw end. The Pulley on Arbor is 4½ inch diameter, 5 inch face, and is on the end or outside of frame, so that it can be belted in any direction. The Journals are babbitted with the best Anti-Friction metal and are Self-Oiling.

The Countershaft has tight and loose Pulleys 8x4 inches and should run 625 revolutions per minute.

Weight, 400 pounds.

Floor space required 4 feet x 4 feet 6 inches.



No. 225 Truck. Price \$7.00.

Thousands in use. Platform 28x48. Height, 16 inch. Main wheel, 14x2½. Swivel wheel 6x1½. 1 in. steel axle.



No. 226 Truck. Large and Heavy, \$8.00.

Platform, 36x60. Height, 18 in. Main wheel, 16x3 in. 1½ in. steel axles. Capacity large and designed for heavy work.

The frame of all our Trucks are made of the best hard wood, thoroughly bolted together.

Our castings are heavy and well proportioned.

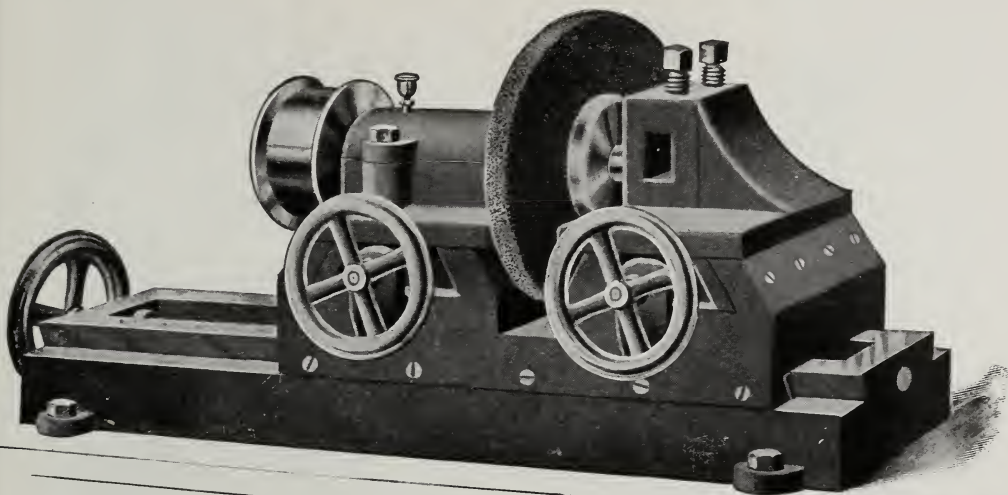
Our corner pocket sets out over the frame so as to give the whole size of the platform for use between the stakes.

The corner pockets are heavy and are thoroughly bolted to the frame, so as to make an almost indestructible corner. This is the weak point in many trucks. We are sure we can claim the best corner and stake pocket made.

All goods thoroughly guaranteed.

The Right Time to Grind Band Wheels is When They Need It.

The Bolton Band Wheel Grinder with Emery Wheel and Tool Attachment, adapted to every size and type of Log Band or Band Resaw Mill manufactured. It has never failed to please.



(Sold with unqualified warranty)

No. 27B Bolton Band Resaw Grinder, to face wheels any diameter, 8 inches or less wide	\$80
No. 27 Bolton Log Band Mill Grinder, to face wheels any diameter, 12 inches or less wide	90
No. 27-A Bolton Mammoth Log Band Wheel Grinder, to face band wheels any diameter, 16 inches or less wide	100

Complete with one emery wheel and turning tool, f. o. b. Grand Rapids.

10 Per Cent. advance in price for boxing and delivery f. o. cars New York for export.

Approx. Weight	Driving Pulley	Speed	Code Word
350 to 500 lbs.	5 inch	12-0 to 1500	Results
	3 inch Belt		

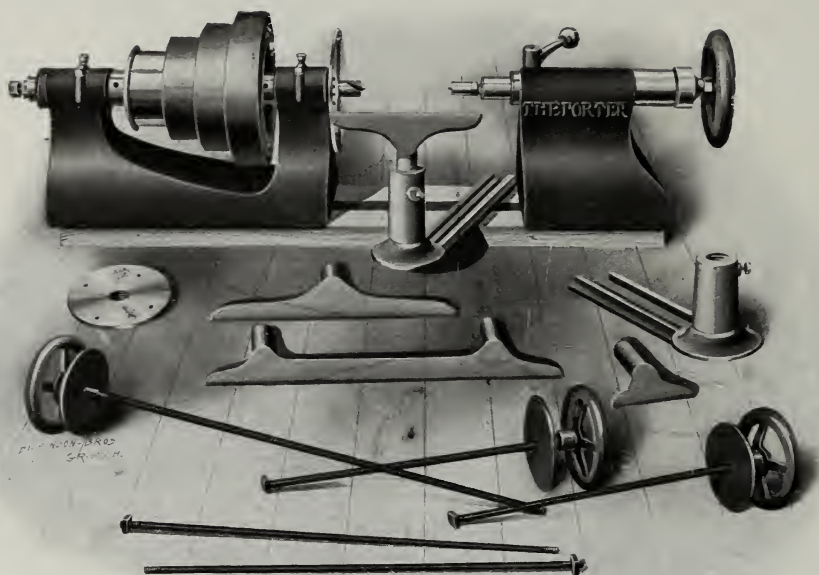
This machine has been designed to meet the demand for a high-grade, thoroughly well-constructed, efficient machine, provided with both a tool attachment for turning and an emery wheel for grinding, the latter being always essential and the former desirable where, if much dressing is required, time can be saved by taking a preliminary cut with the tool. The machine is provided with a single lateral feed and two independent direct feeds, one for the emery wheel and one for the tool, so that these may be used independently or together if desired, the tool taking the first cut, followed by the smoothing grind of the emery wheel. This insures a remarkably smooth, true surface, with a distinct saving of time.

The machine is thoroughly well built, the slides being particularly heavy and hand scraped to bearing, and an abundance of metal being used to render the machine free from vibration. It is used by a large number of mills and has uniformly given satisfaction.

BAND WHEEL GRINDING.

No highly skilled machinist is required for grinding band wheels. No principle is involved other than that of an ordinary turning or grinding lathe. The work is usually done by the saw filer or millwright or by the mill or factory foreman. First measure the front and back edge of face of band wheel with a steel tape line. A comparison of these measurements will tell you to what extent the back edge is longer than the front edge. A difference of only $\frac{1}{4}$ -inch in the circumference of the two edges is plenty enough to cause trouble. The difference is usually much more. Knowing what it is, you can then judge whether a light or heavy cut or more will be necessary with the turning tool. Mount the grinder in front of wheels on suitable timbers, level the band wheel shaft and the grinder and line the grinder shaft with the wheel shaft, which can be readily accomplished with the adjustments for the purpose on the grinder frame. The band wheel should turn slow and uniformly, say 10 turns or so per minute. Turning over of band wheel by hand should be avoided if possible, as it is not uniform. The wheel may be run by the engine slowed down, or as is quite common, by erecting a small shaft, say 1 15-16-inch, as indicated by sketch, with a small friction pulley on one end, and a large pulley on the other end, driven from the nearest convenient shaft. The grinder should run about 1500 revolutions per minute.

THE PORTER IMPROVED CABINET MAKERS' LATHE.



This cut represents our new and improved Cabinet Maker's Lathe for use on wooden shears. We make five sizes, as follows: 12 inch, 14 inch, 16 inch, 18 inch and 20 inch.

The 12 Inch Lathe—The bearings are $1\frac{1}{8}$ inches diameter and 4 inches long. Weight 270 lbs. Price \$35.00.

The 14 Inch Lathe—The bearings are $1\frac{1}{8}$ inches diameter and 4 inches long. Weight 290 lbs. Price \$39.00.

The 16 Inch Lathe—The bearings are $1\frac{1}{8}$ inches diameter and 4 inches long. Weight 325 lbs. Price \$45.00.

The 18 Inch Lathe—The bearings are $1\frac{3}{8}$ inches diameter and 4 inches long. Weight 375 lbs. Price \$50.00.

The 20 Inch Lathe—The bearings are $1\frac{1}{2}$ inches diameter and 4 inches long. Weight 425 lbs. Price \$57.00.

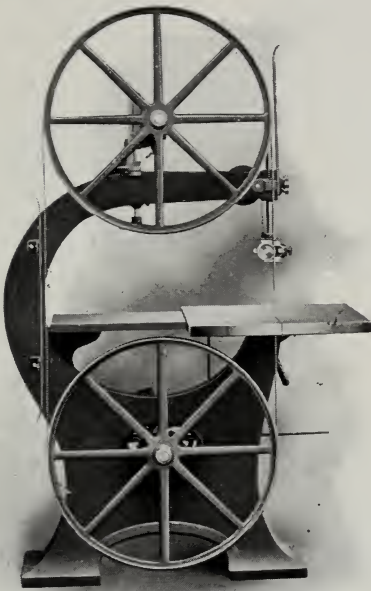
We furnish this lathe complete with bolts, hand wheels and washers for fastening the lathe to the shears; one face plate, one spur and center, two steps for holding rests; one 6 inch, one 12 inch, on 18 inch and one 24 inch rest.

The countershaft is complete with hangers, steel shaft, cone pulley, pair of T. and L. pulleys, belt shifter and drip cups, and should run from 800 to 1,000 revolutions.

We also make Double End Pattern Makers' Lathes, with overhanging face plate, as follows:

16 inch Pattern Lathe, 350 lbs.	\$51 00
18 inch Pattern Lathe, 400 lbs.	56 50
20 inch Pattern Lathe, 450 lbs.	62 00
24 inch Pattern Lathe, 650 lbs.	90 00

BAND SAWS



No. 203 36 inch Band Saw, 1,200 lbs..	\$100.00
No. 204 32 inch Band Saw, 900 lbs...	80.00
No. 205 26 inch Band Saw, Belt or Foot	
Power, 500 lbs.....	65.00

No. 203 is the standard size as used in factories and large planing mills, having ample capacity to accommodate any ordinary work. The guide bar is of steel, hexagon in shape, and is provided with a counter weight for convenience in adjusting, and to prevent accident from falling when loosened. The machine has both front and rear fenders, and the rear fender has an arrangement to prevent vibration to the up-going saw. The frame is cast entire in one piece, hollow, making an extremely rigid machine.

No. 204 is a good size machine to select for factory or general planing mill use, where the work to be done is not extremely large dimension, or where the amount of work would not justify the purchase of a more expensive machine. In rigidity and durability the machine is the equal of our 36

inch, and the frame is also cast entire in one piece, cored out hollow.

The Wheels are made of cast iron, turned up perfectly true and balanced. Endless rubber bands are then cemented to face of wheels, and the rubber again ground true.

The Upper Wheel can be inclined forward or backward, as well as angled diagonally, to lead the saw on any desired path on face of wheels. It can be raised and lowered to accommodate saws of varying length. These adjustments can be made while saw is in motion.

The Tension on saw is regulated by hand-wheel to suit for any kind of work. On the 26, 32 and 36-inch machines a tension spring is provided inside of main frame, to allow for contraction and expansion of saw. This is considered better than a weight tension.

Tilting Tables are provided on all machines, except the 18-inch machine, which has rigid table. The tables tilt to any angle up to about 45 degrees, and are held rigidly at any point by means of an eccentric lever—no wrench required. Customers will be given their choice of iron or wooden tables on the 26, 32 and 36-inch machines, but the 18-inch and 20-inch machines will be furnished with wooden tables only. The height of table from floor, on all of the machines, is 40 inches. Sub tables are provided, as shown in cuts.

The Main Frames on all of the machines are cast hollow, that is, cored out, rectangular section.

PRINCIPAL DIMENSIONS.

	No. 203	No. 204	No. 205
Size of band wheels	36-in. x 2-in. face	32-in. x 1 3/4-in. face	26-in. x 1 1/2-in. face
Distance clear between saw and frame,	35 in.	31 in.	25 in.
Height clear under guide, when raised,	15 in.	12 in.	10 in.
Size of table (iron or wood),	28x32 in.	24x28 in.	20x24 in.
Diameter of tight and loose pulleys,	12 in.	12 in.	10 in.
Width of belt to use,	4 in.	3 1/2 in.	3 in.
Speed, revolutions per minute,	350 to 450	350 to 450	350 to 450
Length of saw blade,	18 ft. 6 in.	16 ft. 5 in.	13 ft. 9 in.

Each machine is provided with belt shifter, one saw blade, set and filed ready for use, and an outfit with directions for joining saws.

No. 314C Scroll Saw.

Weight 450 lbs.

Price - \$58.00

The Scroll Saw, of which the accompanying cut is an exact illustration is designed for both heavy and light sawing.

The frame is heavy and specially constructed for strength and firmness. The table is composed of alternate strip of cherry and black walnut securely glued together.

The forged steel crosshead below the table runs in gun metal slides. These slides are adjustable and furnished with glass oilers.

The strain is without doubt one of the most simple and durable on the market. It holds the saw at an even tension at all points of the stroke. It has but one straight strap, on which there is no friction; the same strap will last for years, a fact that will be appreciated by parties using other strains on which the straps are continually breaking, causing much annoyance and loss of time.

The tension on the saw is easily regulated by means of small hand wheels at the base of the steel coil springs at each side of the strain.

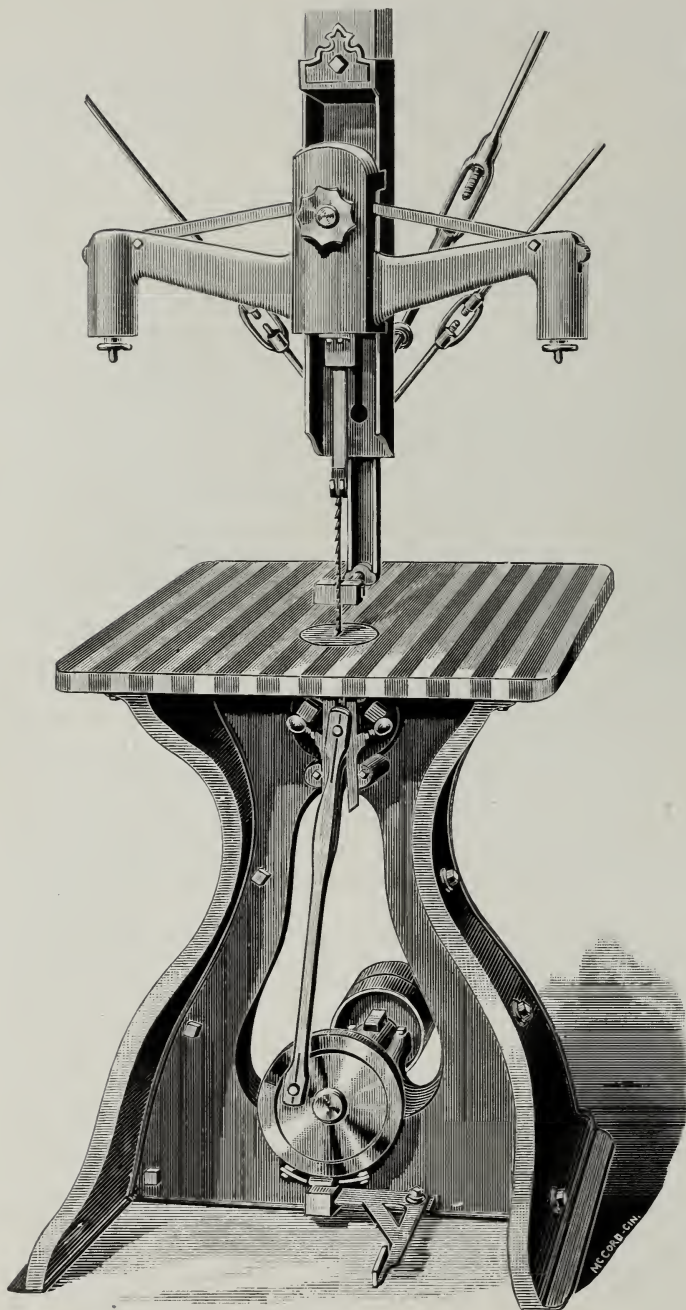
Adjustable stay rods are attached to the frame of the strain to hold it firm and true

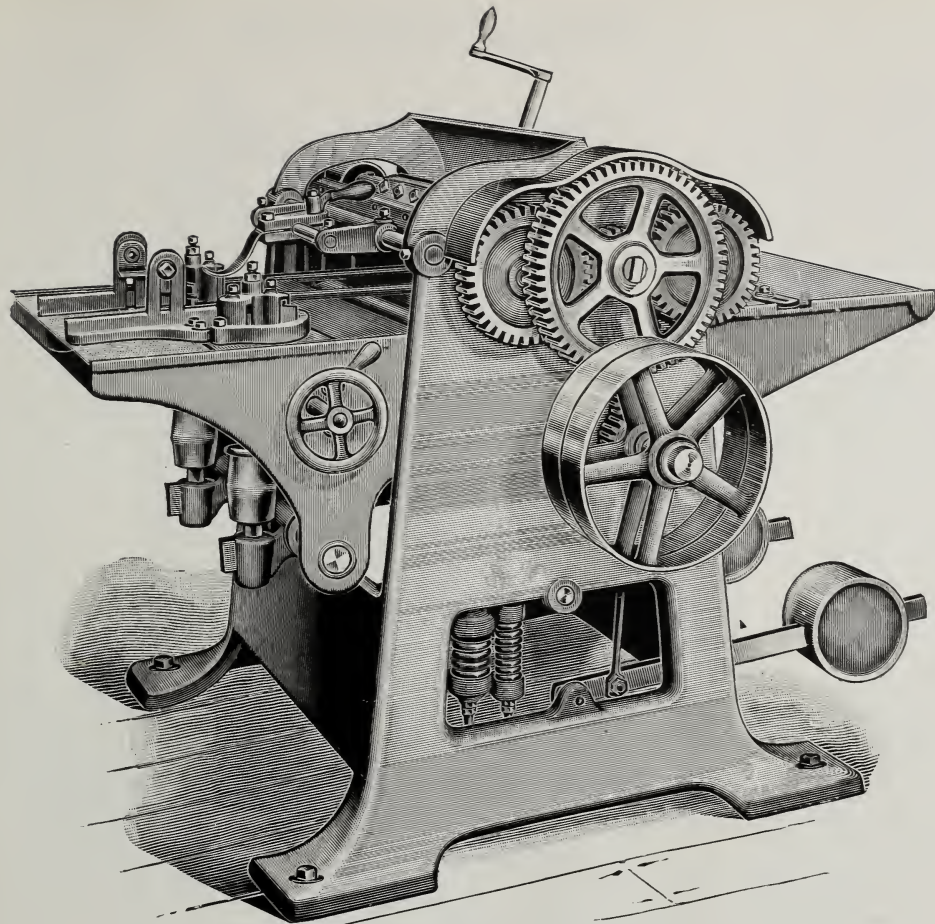
when put up. Carefully and well seasoned hickory is used for pitman and wooden part of strain.

The machine has a 4-inch stroke, and can be run at a very high rate of speed without jarring in the least.

The combined shifter and brake is attached to the machine convenient to the foot of the operator and takes effect instantaneously.

The loose and tight pulleys are 6 x 3, and should run from 1,200 to 1,400 revolutions per minute.





No. 1 PLANER, MATCHER AND MOULDER \$225.

Weight, 2200 pounds.

The accompanying cut represents our No. 1 Planer, Matcher and Moulder, which planes $24\frac{1}{4}$ in. wide and any thickness up to 6 inches, and matches any width up to 12 inches.

The frame is heavy and cast in one piece, and stands firmly, being very wide at the bottom.

The table, which is also cast in one piece, is planed perfectly true and dovetailed into the frame, the bearings being quite long and as far apart as the width of the frame will allow, making the table as steady as if it and the frame were one piece. If, after long use, a little wear should be noticed, it can be instantly taken up by set-screws shown on the side of frame.

For working different thicknesses the entire table is raised, or lowered by one hand wheel shown on cut, the indicator on the side showing exactly to what thickness the machine is set to plane.

The feed rolls are large, the upper front one being fluted and furnished with adjustable weights, making the feed very strong and reliable. The gearing is so arranged that the rolls cannot lift out of gear. The lower rolls are also large in diameter, and turn very easily.

The Matcher Spindles are made of steel, the heads of gun metal, and furnished with solid steel cutters. By loosening one set-screw on side of matcher heads they can be entirely removed, leaving the table clear for planing the full width of the machine.

We desire to call special attention to the fact that the planing head is made four sided, slotted on two sides, so that siding, beading or moulding knives can be used without removing the straight knives. By using the proper knives on the three heads, this machine takes the place of a three-sided moulder 12 inches wide. The bearings are all long and lined with the very best Babbitt metal, and are self-oiling.

We furnish with each machine one pair 24-inch planing knives, one set 5-16 inch tongue and groove bits, one pair beading bits and a complete countershaft.

The loose and tight pulleys are 10 inches in diameter and 6-inch face and should run about 900 revolutions per minute.

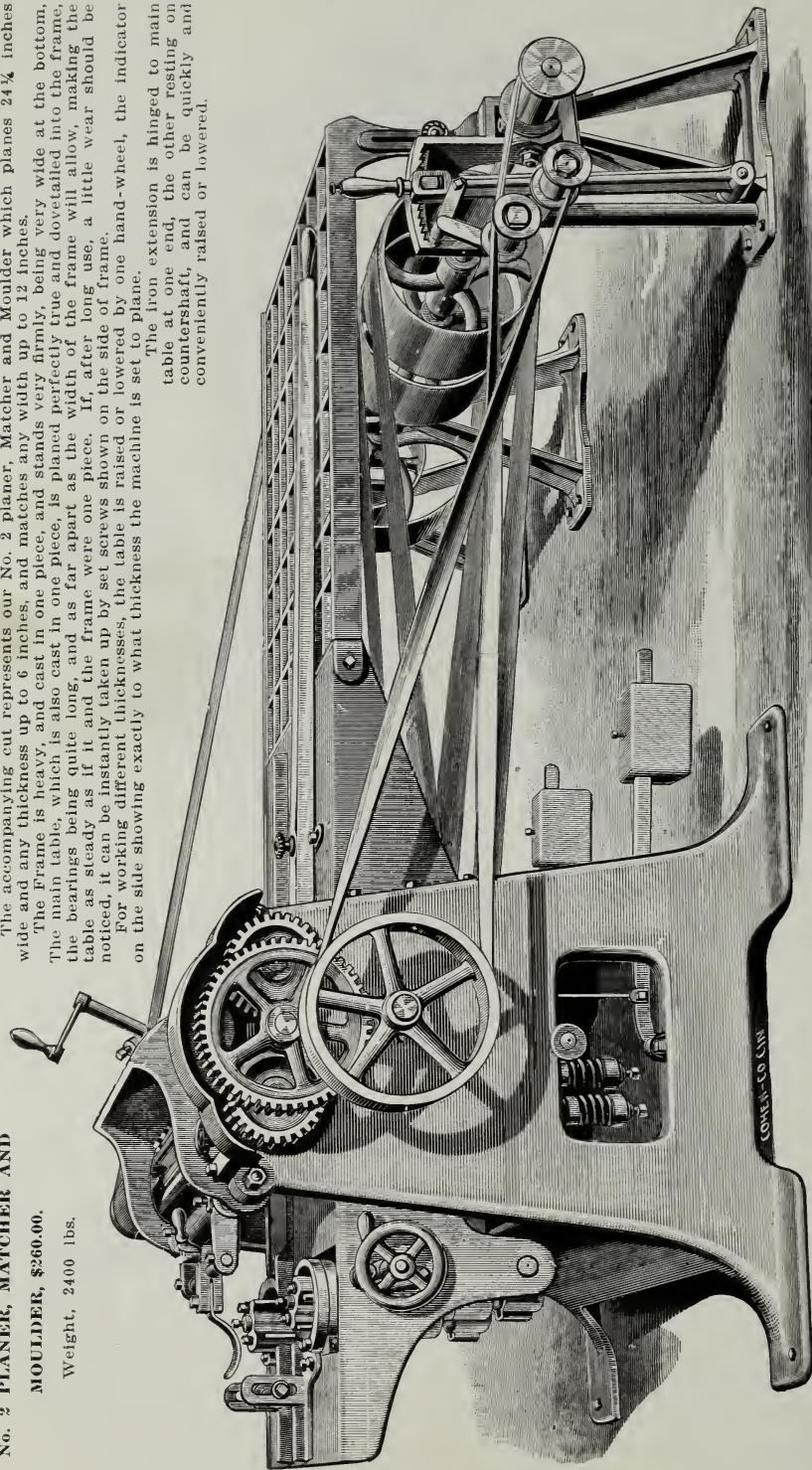
No. 2 PLANER, MATCHER AND**MOULDER, \$360.00.****Weight, 2400 lbs.**

The accompanying cut represents our No. 2 planer, Matcher and Moulder which planes $24\frac{1}{4}$ inches wide and any thickness up to 6 inches, and matches any width up to 12 inches.

The frame is heavy, and cast in one piece, and stands perfectly true and very wide at the bottom, the main table, which is also cast in one piece, is planed perfectly true and dovetailed into the frame, the bearings being quite long, and as far apart as the width of the frame will allow, making the table as steady as if it and the frame were one piece. If after long use, a little wear should be noticed, it can be instantly taken up by set screws shown on the side of frame.

For working different thicknesses, the table is raised or lowered by one hand-wheel, the indicator on the side showing exactly to what thickness the machine is set to plane.

The iron extension is hinged to main table at one end, the other resting on countershaft, and can be quickly and conveniently raised or lowered.

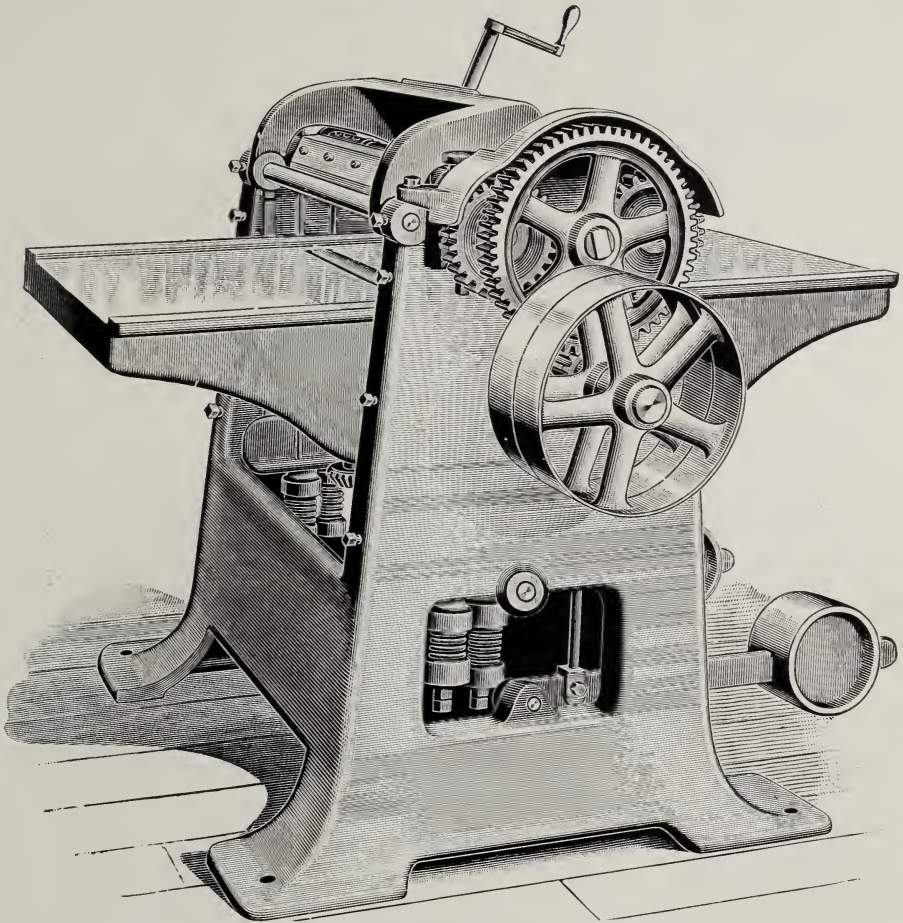


The feed rolls are large, the upper front one being fitted and furnished with adjustable weights, making the feed very strong and reliable. The feed is readily started or stopped by the patent belt-tightener on countershaft; the gearing is so arranged that the rolls cannot lift out of gear, and the lower rolls are also large in diameter and turn very easily.

The matcher spindles are made of steel and the heads of run metal, and furnished with solid steel cutters. By loosening one set screw on side of matcher heads they can be entirely removed, leaving the table clear for planing the full width of machine.

We desire to call special attention to the fact that the planing head is made four-sided slotted on two sides, so that siding, beading or moulding knives can be used without removing the straight knives. By using the proper knives on the three heads, this machine takes the place of a three-sided moulder 12 inches wide.

The bearings are all long and lined with the very best Rabbitt metal and are self-oiling. We furnish with each machine one pair 24-inch planing knives, one set 5-16 inch tongue and groove bits, one pair beading bits and a complete countershaft. The loose and tight pulleys are 10 inches in diameter and 6-inch face and should run about 1,650 revolutions per minute.



No. 305 C 24 $\frac{1}{4}$ INCH SURFACE PLANER, \$145.
Weight, 1500 pounds.

The Planer here shown is a carefully constructed machine and we guarantee it to do first class work, equal, if not superior, to any similar machine made.

It will plane 24 $\frac{1}{4}$ inches wide and any thickness up to 6 inches.

The frame is all cast in one piece being wide at the bottom and gradually narrowing to the proper width at the top.

The table which is also cast in one piece, is planed perfectly true and dovetailed into frame, the bearings being quite long and as far apart as the width of frame will allow, making the table as steady as if it and the frame were one piece. All wear can be taken up by set-screws shown on side of frame.

For planing different thicknesses the entire table is raised or lowered by one hand-wheel shown on cut, the indicator on the side showing exactly to what thickness the machine is set to plane.

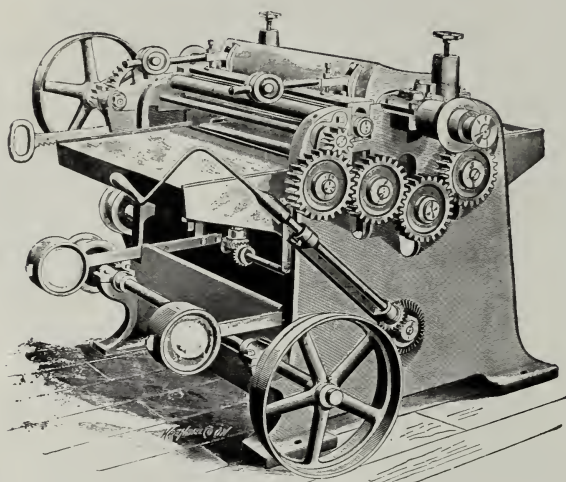
The cylinder head and journals of the same are made from one piece of forged steel the journals being turned perfectly true and having very long bearings lined with the best Babbitt metal.

A self-adjusting pressure bar is placed each side of and close to cylinder, holding the material being planed very steady even when the pieces are short or thin.

The feed rolls are large, the upper front one being fluted and furnished with adjustable weights making the feed very strong and reliable. The gearing is so arranged that the rolls cannot lift out of gear. The lower rolls are also large in diameter and turn very easily.

We furnish with each machine one pair of knives and a complete countershaft.

The loose and tight pulleys are 10x5 $\frac{1}{2}$ and should run about 900 revolutions per minute.

Heavy Double Belted Smoothing Planer.

Two Sizes, 26-inch and 32-inch Wide.

No. 307C., 26-inch \$285:

Weight, 2500 lbs.

No. 308C., 32-inch \$325.

Weight, 2700 lbs.

This planer is constructed for all kinds of planing on both hard and soft wood. It will do very heavy work, and as a finishing planer cannot be excelled. It is made in two sizes, 26 and 32 inches wide, and will plane any thickness up to 7 inches.

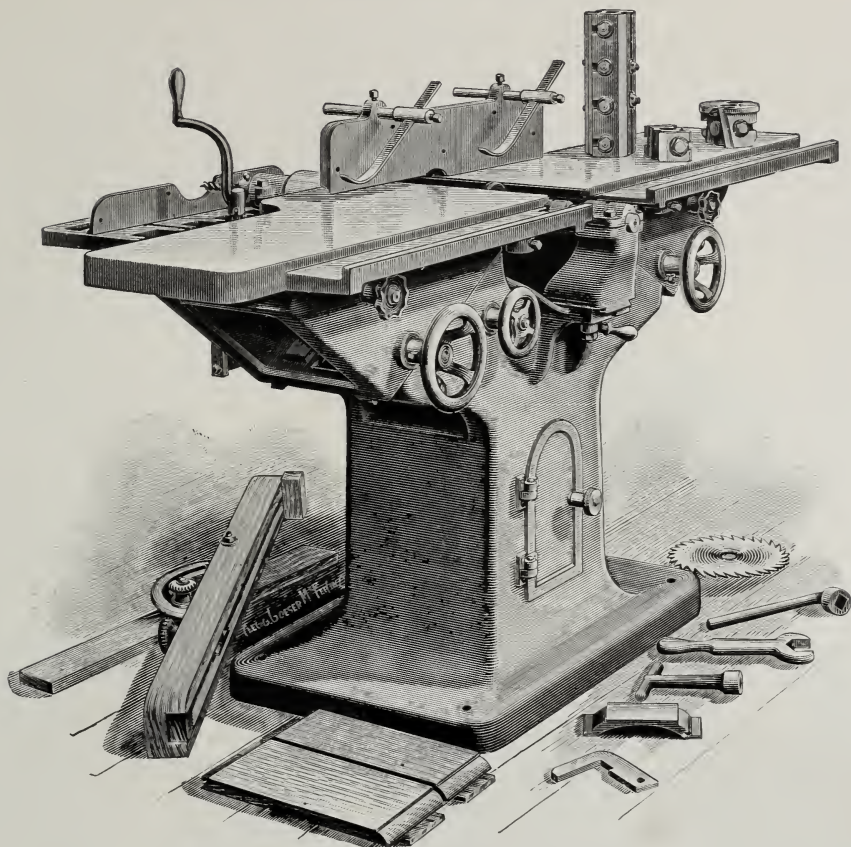
The frame is heavy and strong and covers a large floor space, making it stand up rigidly to its work. The table is dovetailed into frame, having a long bearing at each corner, fitted with steel gib and set-screws for taking up all wear. These long corner bearings and heavy screws, on which table is raised and lowered, hold the table perfectly firm and prevent all vibration.

The section of the table directly under the cylinder consists of a heavy adjustable plate, which can be removed and trued up at any time, if it becomes worn, without taking the machine apart.

The cylinder head and journals of same are made from one piece of forged steel; the journals are large in diameter and have very long bearings, the cylinder is belted at both ends. There is an adjustable pressure bar each side of cylinder and placed very close to same, so that short pieces can be planed, and preventing all tearing out or clipping. Both pressure bars are adjusted from above.

The feed is driven directly from the cylinder. There are two speeds of feed, 22 and 33 per minute, and the change from one to the other is made by simply shifting the belt. The feed is started or stopped instantly by the hand-lever with idler at the side of machine. The upper and lower feed rolls are all driven, they are large in diameter and are made from the very best machinery steel. The upper front roll is fluted and furnished with adjustable weights for obtaining the necessary pressure.

We furnish a complete countershaft with each machine. The loose and tight pulleys are 12x6½ and should make 750 revolutions per minute.



IMPROVED UNIVERSAL WOOD-WORKER.

No. 315C, with Boring Attachment.....	\$225.00
Price without Boring Attachment.....	215.00
Panel Raising Attachment extra.....	30.00

Weight, 1300 pounds.

This machine, as its name implies, is capable of a great variety of work, including hand-planing, jointing, moulding, rabbetting, tenoning, mitering, beveling, paneling, grooving, rip-sawing, cross-cut sawing, boring, routing, etc.

We furnish three heads with the machine as shown on cut—one twelve-inch four-sided slotted steel head, one rabbetting head, and one small jointing head; also one 12-inch saw. Other heads furnished, when desired, at a reasonable price.

The main frame of the machine is a heavy cored casting with large base. The tables are raised and lowered in V slides on the inclined tops of the frame, by the large hand wheels shown on the front of machine; all wear can be taken up by set screws. The tops of tables run in slides and can be adjusted to and from mandrel by the small hand wheels shown on the front of machine. They are locked in place by other hand wheels under tables, not visible on cut. The length of tables from out to out is over six feet, the tables have a groove in the side 4 inches wide for gaining frame to slide in, etc. We furnish the gaining frame with machine.

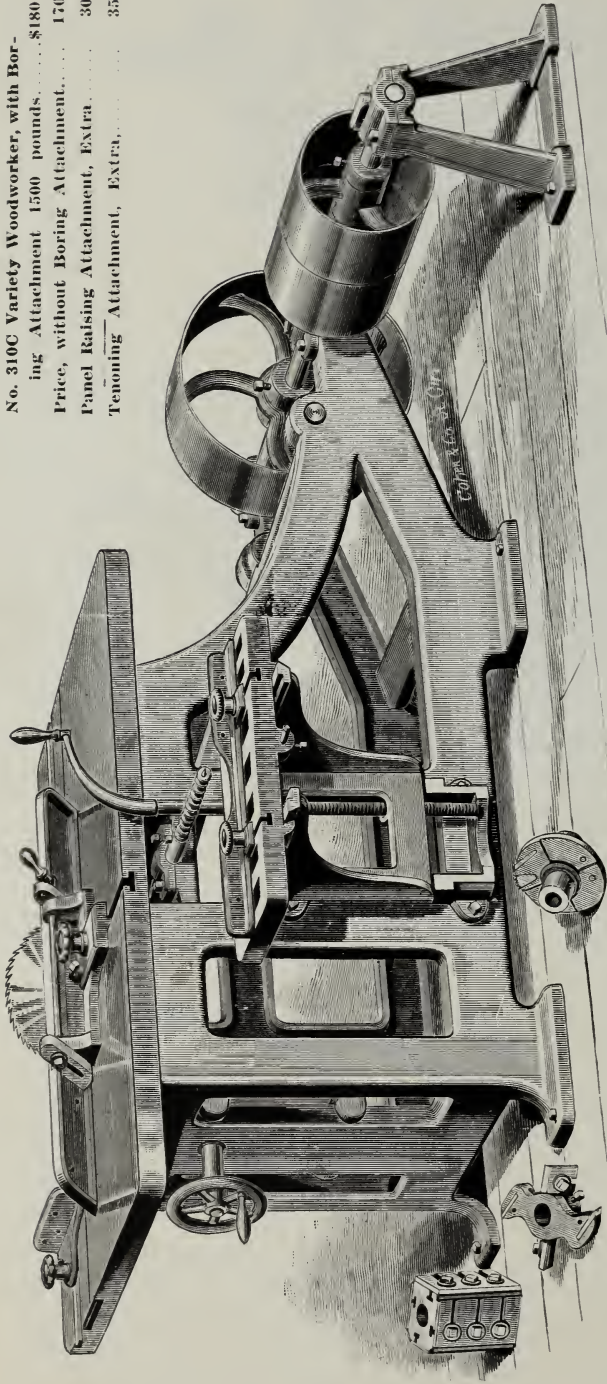
The improved adjustable fence can be set at any angle and has lugs on the top for spring posts, these springs can also be used in the sides of the tables when working the edge of a board, or when ripping.

The mandrel is $1\frac{1}{2}$ inches in diameter and has three long, self-oiling bearings, lined with the best of Babbit metal; one of the bearings is on rear end of spindle beyond pulley. The front bearing can be instantly removed, as shown on cut, for the purpose of changing heads. The mandrel is adjustable laterally across the table by a small hand wheel on front of machine near the center.

When desired, a complete boring attachment can be placed in the opposite side of machine; it can be raised and lowered and has a sliding table with adjustable fence.

A complete countershaft is furnished with machine; the loose and tight pulleys are $10 \times 5\frac{1}{2}$ inches, and should make about 800 revolutions per minute.

No. 310C Variety Woodworker, with Boring Attachment 1500 pounds.....	\$180
Price, without Boring Attachment.....	170
Panel Raising Attachment, Extra.....	30
Tenoning Attachment, Extra.....	35



This cut represents our Improved Variety Wood-Worker which can be used for rip-sawing, cross-cut sawing, jointing, hand-planing, boring, routing, mitering, beveling, planing, grooving, moulding, etc. The frame and table are both of iron and very heavy, the countershaft resting on extensions of the frame, with an outside bearing which insures perfect firmness. The Frame is long making the belt from countershaft to mandrel so long that all danger of the belt slipping is avoided.

The different parts are not crowded together, but are so arranged as to be conveniently operated or changed, as desired, in the shortest possible time.

The false table consisting of two parts, slides into the large table for each end, allowing any size heads being used, any size saw up to 16 inches can be used on mandrel. The back slide can be quickly raised up to an inch above the level of the main table, for jointing, etc.

The table is furnished with two fences, which can be instantly adjusted to different angles. The ripping fence is a great improvement over the one shown on cut.

The mandrel, which is of steel, runs in long, self-rolling bearings, and is raised and lowered on swinging frame by hand-wheel shown in front. The swinging frame is so arranged that it is impossible for it to jar or vibrate. The raising or lowering of the mandrel does not affect the tension of the belt in the least. The boring attachment is raised and lowered by screw and wrench-handle, and has a sliding table with adjustable fence.

An attachment for tenoning with sliding table, can be furnished with this machine when specially ordered. Also an attachment for raising panels.

We furnish with this machine one 14-inch rip-saw and one 6-inch slotted steel head, with straight knives.

We specially recommend this machine for furniture, carriages, wagons, box factories, planing mills, carpenter and general wood-working shops.

We also make this machine without jointing or boring attachments, or with one and without the other if desired.

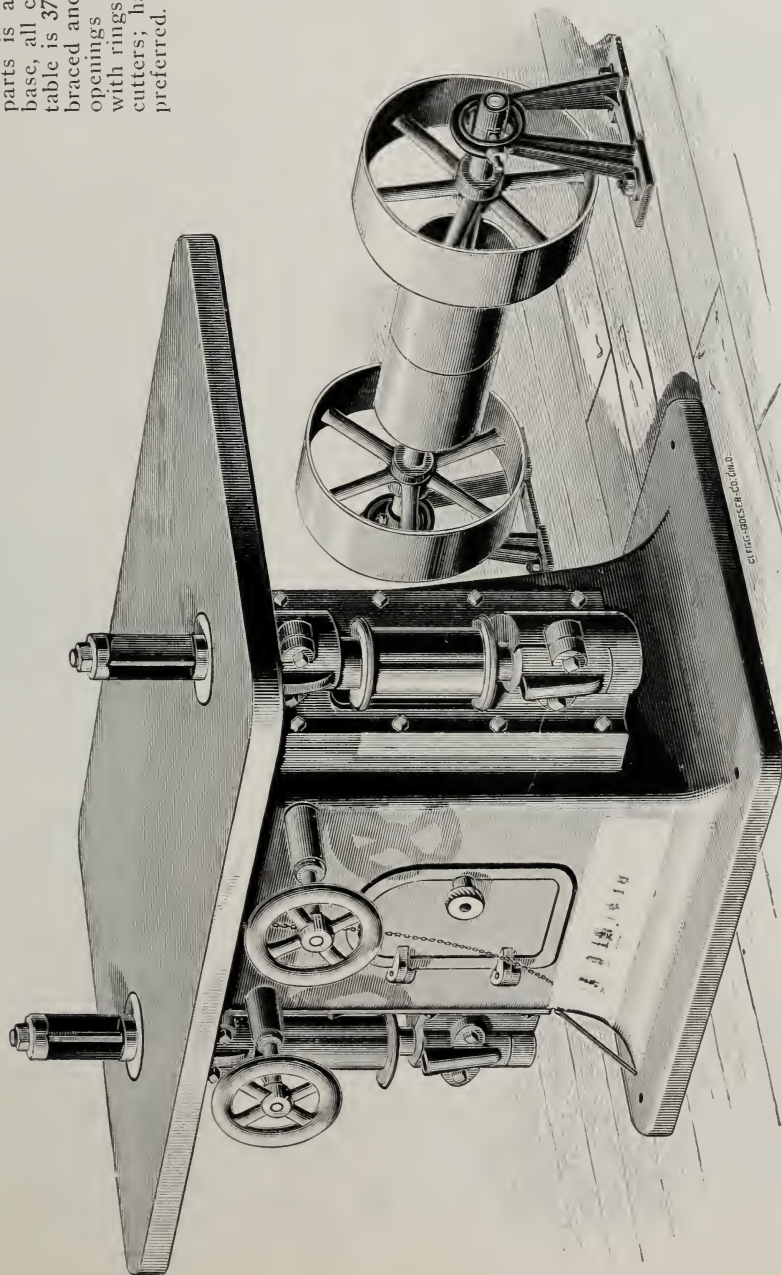
The loose and tight pulleys are 10 x 6½ inches, and should make 700 revolutions per minute.

This machine is built from entirely new patterns, and has all the latest improvements; its construction is first class in every particular, and is suitable for both light and heavy work.

The frame carrying the working parts is a heavy column with large base, all cast in one piece. The iron table is 37x48 inches. It is strongly braced and planed perfectly true; the openings for spindles are furnished with rings for different sized heads or cutters; hardwood table furnished if preferred.

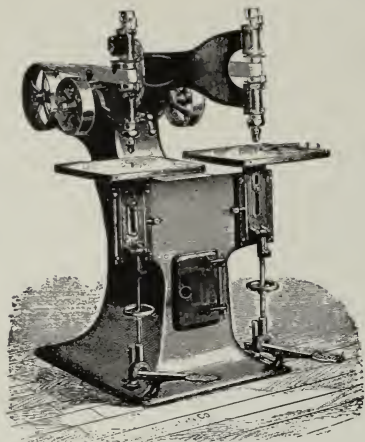
The spindles are of a fine quality of steel turned perfectly true, and are 26 in. apart. We usually make them one inch in diameter above table; they can be made larger or smaller if desired. The connecting boxes carrying spindles are gibbed to sides of frame in such a manner that any wear which may take place after long usage can be instantly taken up. They are quickly and accurately raised or lowered by the hand wheels shown on front of machine. The boxes are lined with best quality of Babbitt metal and are self-oiling. Each spindle is furnished with fill-up collars and a pair of 3-inch slotted steel collars with straight bits.

We furnish complete counter-shaft with machine; loose and tight pulleys are 10x5½ inches, and should make about 800 revolutions per minute.



IMPROVED DOUBLE SPINDLE FRIEZER OR SHAPER

No. 309C. Price, \$140. Weight 1100 lbs.

**New Double Rounder**

No. 217A machine, weight 1300 lbs.
No. 217B machine, weight 1450 lbs.

Large Cut and Full Description on Request.

This machine is for use with spindles carvers. It is adapted to any amount of work used in the manufacture of furniture. Routing out work for the spindle or hand carver. Rounding the edges of carvings or doing a great variety of work usually done on a shaper, and for making rosettes and buttons it has no superior.

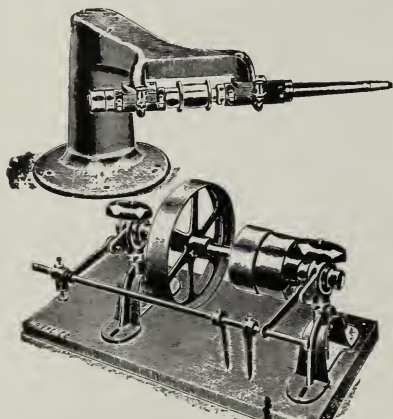
The spindles on the No. 217 A machine, are made of $1\frac{3}{4}$ -inch machinery steel and are 24 inches apart and will cut to the center of a 40-inch circle.

The spindles on the No. 217B or heavy machine are made $1\frac{1}{2}$ inch machinery steel and are 30 inches apart.

The spindles are carried on ball bearings at the top of the upper box.

The boxes are made of bronze and are extra long, and the bearings are ground to a perfect fit.

The tight and loose pulleys are 6-inch by 4-inch, and should run 1,200 revolutions.

**New Improved Spindle Carver**

No. 218B Spindle Carver, 175 lbs.
No. 218A Spindle Carver 150 lbs.

Large Cut and Full Description on Request.

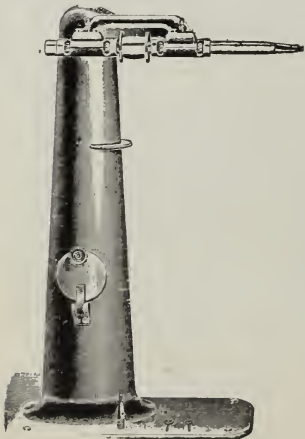
The No. 218A machine is 26 inches from cutter to the column. The spindle is $1\frac{5}{16}$ inches diam., made of No. 1 machine steel. The pulley is $2\frac{1}{4} \times 2\frac{1}{4}$ in., and is 13 inches above the table. The front box is 7 in., and the rear box 6 in. long.

The No. 218B is 20 inches from cutter to column. The spindle is $1\frac{7}{16}$ inches diam. The pulley is $2\frac{1}{2} \times 2\frac{1}{2}$, and is 13 in. above the table. The front box is 8 in., and the rear box is 7 in. long.

The spindle is a true taper from the end of box to the center. We send two extra points with each machine. This enables one to use large or small cutters. The large thread is $\frac{1}{8}$ —20. The medium is $\frac{3}{8}$ —24. We always keep a stock of the $\frac{3}{8}$ —24 cutters on hand.

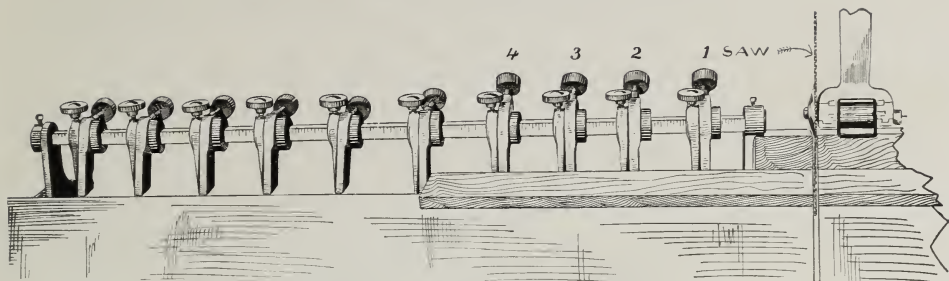
We furnish the machine with our adjustable hangers, countershaft, boxes, pulleys, drip cups and belt shifters.

There is three inch adjustment in the hangers. This allows one to use an endless belt. The tight and loose pulleys are $6 \times 2\frac{1}{2}$ inches and should run 1,200 revolutions.



No. 219 Column Spindle Carver
Weight 500 lbs.

The accompanying cut represents a Column Spindle Carving Machine. The base of this machine is 24×30 inches; it is 48 inches from the floor to the spindle. The column is 24 inches in diameter at the base and 7 inches at the top. The spindle is $1\frac{1}{8}$ inches in diameter, made of the best steel and runs in solid brass boxes, 7 inches long. The cutter is 28-inches from the column, affording ample room for **handling** the work. The arm is on an angle, which makes it very rigid. The spindle runs noiselessly and perfectly true and can be run at as high rate of speed as the brass bench carvers, or from 7,000 to 8,000 revolutions per minute. If desired, a separate table on casters can be used, and the work, thus wheeled to any place on the floor. The countershaft shipped with this machine has adjustable hangers, so that an endless belt can be used and take up the stretch without cutting and lacing. We furnish machine complete, with countershaft, boxes, hangers pulleys, drip cups and belt shifter. Tight and loose pulleys $2\frac{1}{2} \times 6$ inches and should run 1,000 revolutions.



PATENT SWING SAW GAUGE.

Saves time, material and thereby money. Will save its cost many times over during the year. Not an expense, but an investment, yielding large returns. Any of the guess-work devices now in use will not avoid waste. Lumber costs money, and waste is money thrown away. The gage permits of absolute adjustment of the lumber on the saw table thus insuring against waste of lumber. Any number of lengths can be cut without having to change the stops, thus involving no waste of time. Stops operate automatically and do not require attention of the sawyer, thus giving him more time to guide the lumber carefully and increase the volume of work. Made of malleable iron, which will not break. Beware of fraudulent imitations and infringements made of cast iron.

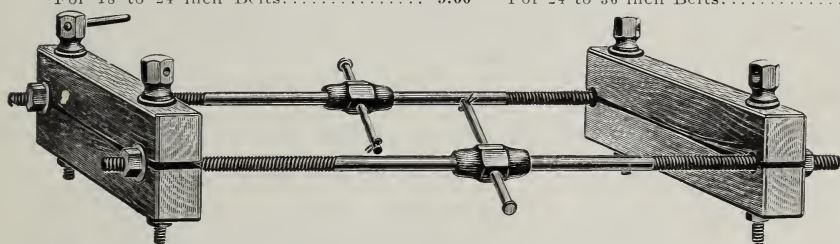
Price, \$1.50 per foot and \$1.50 per stop.

In use in nearly every woodworking factory in Grand Rapids, and in hundreds of others in other towns in the United States, Canada and England.

In ordering please designate whether the gage is to be on the right or left hand side of the table facing the saw; also designate whether the gage is to be marked in inches consecutively with a foot mark inserted at the end of each 12 inches, or whether it is to be marked in feet with 12 inches repeated in each foot. Also state whether the saw is on the same end of mandrel as that of the table which the gage is to occupy.

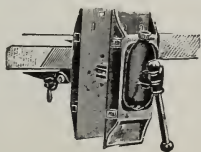
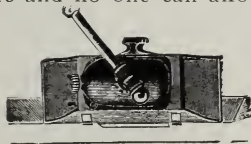
IMPROVED IRON SCREW BELT CLAMP.

For 6 to 14 inch Belts.....	\$6.00	For 12 to 18 inch Belts.....	\$7.50
For 18 to 24 inch Belts.....	9.00	For 24 to 36 inch Belts.....	13.50



This clamp has corrugated and beveled jaws which insure strong gripping. Frame is of rock maple and

the screws of the best wrought iron with square head and rapid pitch. They are the best clamps made and no one can afford to do without them.



A time and labor saver—easily and quickly operated—strong and durable. It is a Pattern Makers' or Wood-Workman's Vice and is adopted by many of the leading Pattern Makers and Wood-Working Shops in this country and abroad.

Adaptable to any conceivable position to suit the convenience and comfort of the workman.



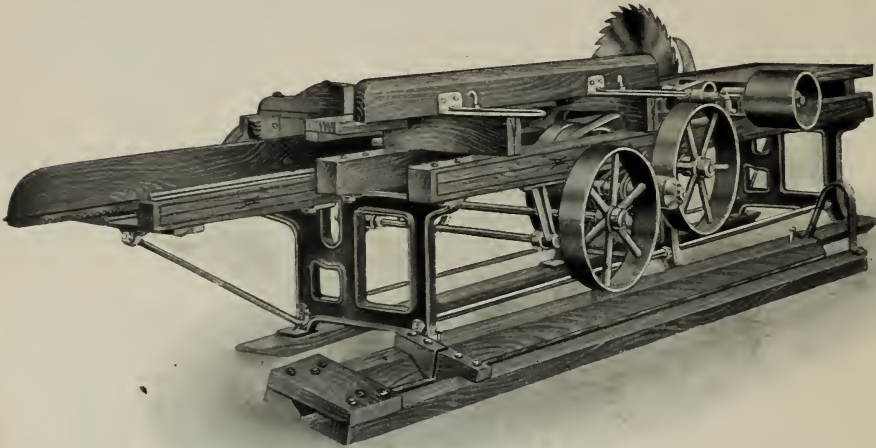
This vice has 6 pairs of jaws and is adapted to grasp any kind of work without regard to its irregularity of form. It is a time saver and without a peer for the woodworkers' use. It is susceptible of 14 different fixed positions in a twinkling and an indefinite number of others. All leading shops and pattern rooms are being equipped with from one to 50 of these vices.

SIZES AND PRICES AS FOLLOWS:

No. 1 Vice,	7x18½ inch,	opens 14 inch,	price \$18.00
No. 2 Vice,	5x14 inch,	opens 13 inch,	price 15.00
No. 3 Vice,	3½x1¼ inch,	opens 12 inch,	price 13.50

**B. T. & B. FRICTION-FEED SELF-TRIP OR HAND-TRIP BOLTING AND SLAT
SAW MILL.**

A General Utility Saw for Box, Basket, Crate, Implement or Wagon Stock, or Similar
Material From The Bolt or Plank.



(Descriptive Circular on Request.)

No. 1 Bolter or Slat Mill with 30 in. saw, 6ft. carriage, 3000 to 5000 capacity	
1450 lbs.....	\$135.00
No. 2 Bolter or Slat Mill with 36 in. saw, 8ft. carriage, 3000 to 5000 capacity	
1650 lbs.....	145.00
Post or Bolting Splitting Attachment, extra for either mill.....	15.00

What users say.

THEODORE KUNDTZ, CLEVELAND, O.—I beg to advise you that the Bolter has given perfect satisfaction. I am well pleased with same.

E. E. BOLLES & Co., COLEMAN, WIS.—The Bolter we purchased last spring has given us entire satisfaction in every way. It will split posts as fast as they can be put on the carriage.

E. H. FALL, PORT CLINTON, OHIO.—I am using one of your Bolters and have for some time. It has given me perfect satisfaction. It is a convenient mill to operate and is well constructed. I bought this machine with the understanding that it was to have a 36 in. saw; I, however, am running it with a 42 in. inserted tooth saw and am getting very good results. We are sawing mostly narrow gauge ties, and we find it very handy for this work. We are sawing mostly narrow gauge ties, and we find it machine of the kind I ever saw.

ROBINSON BASKET CO., PAINESVILLE, OHIO.—Please to ship us as quickly as possible, another 8-ft. Mill, same as last sent us, with one saw, same as sent previously. Don't forget to put on the box on the end of arbor, outside of belt pulley, same as our former rig.

Please to advise by return mail how soon you will ship. This makes four or these mills we have bought of you, and you ought to be able, after awhile, to give us a special discount, on account of being good customers, if for nothing else.

INDEX.

Anvils	5	Manual	6, 7
Band Saw	73	Outfits	6, 7
Brazing Clamps.....	23, 38	Planers	75, 76, 77, 78
Brazine	5	Planer Bolts.....	55
Band Filer.....	35	Pulleys	31, 38
Band Brazer.....	37	Racks,	37
Band Sharpeners.....	16, 18, 20	Repairs	24, 30
Band Saw Guide.....	38	Retooter	34
Band Wheel Grinder.....	32	Rip Saw	65, 66, 67, 70
Belt Clamp	83	Saw Guage	83
Bench Grinder.....	42	Saw Guards.....	41
Bolting Mill	84	Saw Tools.....	9
Carvers	82	Shapers	21, 22, 27, 29
Cutter Head Grinder.....	42	Swages	21, 24, 26, 28, 29
Circular Sharpeners.....	43, 44, 45	Setters	36, 39, 40
Emery Wheels.....	55	Sidefiles	22, 28
Filing Clamps.....	23, 39, 41	Spindle Shaper	81
Forges	24	Straight-edges	3
Gages	3	Stretchers	11-15
Hammers	5	Shear	34
Jig Saw	74	Swing Saw	68, 69
Knife Grinders.....	46-49	Solder	5
Knife Balances.....	50, 51	Tool Grinder	42
Knives	52-54	Trucks	70
Lap Grinder.....	33	Wall Brackets.....	31
Lap Cutter.....	33	Wood Lathe	72
Leveling Blocks.....	4	Woodworker	80

ADVERTISERS' INDEX.

Atkins & Co.,.....	57	Ohlen Saw Mfg., Co.....	58
Champion Saw Co.,.....	56	Sinker Davis Co.,.....	62
Canada Lumberman.....	59	Superior Corundum Wheel Co.,	63
Hall & Brown.....	64	Woodcraft	60
Huther Bros.....	58	Woodworker	61
National Corundum Wheel Co.,	62	Vise	83

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AUGUSTA, GEORGIA

Foundry, Machine and Boiler Works and Mill Supply Store. Engines, Boilers, Bridges, Roofs, Tanks, Tower and Building Construction; Cotton, Saw, Grist, Oil, Fertilizer, Cane and Shingle Mill Machinery and Repairs; Building, Bridge, Factory, Furnace and Railroad Castings; Railroad and Mill Supplies; Belting, Packing, Injectors, Fittings, Saws, Files, Oilers, etc.; Shafting, Pulleys and Hangers.

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Capacity for 300 Hands
ENGINES, Korting and Leader Injectors,
Turbine Water Wheels, etc.
High Grade Mill BOILERS built to Hartford
Specifications a Specialty
Locomotive Tender Tanks

WRITE US BEFORE YOU BUY



